

**SONY®**

COLOR VIDEO CAMERA

**BVP-5P**

***BETACAM***

OPERATION AND MAINTENANCE MANUAL

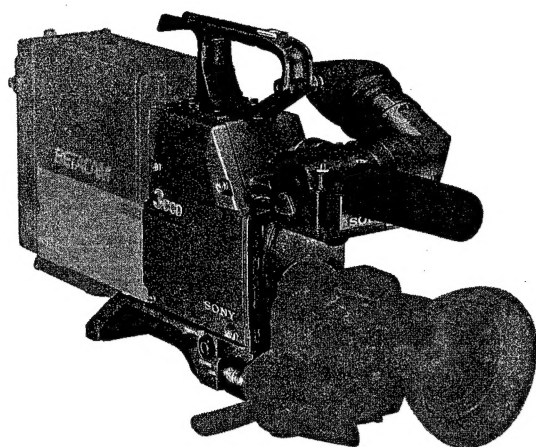
1st Edition (Revised 2)

Serial No. 10001 and Higher

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# SECTION 1 OPERATION

The BVP-5P is a compact and lightweight color video camera with a three-chip CCD (Charge Coupled Device) solid state image sensor. When the BVP-5P is used together with a BVV-1PS/BVV-1APS portable video cassette recorder, a Betacam system BVW-105P for ENG (Electronic News Gathering) is created, making it possible for camera recording to be done by a single person.

When a CA-3 camera adaptor (optional) is used together, the BVP-5P can be used as a portable camera.

## 1-1. OUTLINE

### Adoption of CCD

Incorporation of CCDs results in a more compact and lightweight camera body and less power consumption than a camera using pick-up tubes. The camera life is elongated, and the following characteristics can also be obtained.

- Low lag, high resistance to image burning and low geometric distortion.
- The CCD is not affected by vibration and mechanical shock.
- The CCD imager is not influenced by terrestrial magnetism.
- Thanks to the high signal-to-noise ratio, the video output level can be raised by 9 dB or 18 dB to obtain a clear picture under low light conditions.
- No registration adjustment is required.

### Compact and lightweight

The magnesium diecast body is light and rigid. The compact design and lightweight makes the BVP-5P easy-to-operate camera.

### High sensitivity

The video output level can be raised by 9 dB or 18 dB. Even at the 18 dB position, a high quality picture is assured so that the recording under low light conditions will be possible.

### The automatic white balance and black balance/preset white balance

The white balance and black balance can be automatically adjusted at each filter position, and the adjusted value can be kept in the memory A and B even when the power is turned off.

The memory A and B stores the adjusted value at each filter position separately so that up to 8 values can be stored. When the WHITE BAL switch is set to PRESET, a white balance at about 3200° K is obtained.

### Warning system

If there is a problem on the VTR or the tape, or if the battery is to end, the warning lamps in the viewfinder indicate it. When the BVP-5P is used together with the BVV-1PS/BVV-1APS, the warning sound is heard and the tape remaining time indicators in the viewfinder will function.

### Character display function

The setting of switches, the items and conditions of automatic adjustment and the steps of self-diagnosis can be displayed on the viewfinder screen.

### Auto-close mechanism

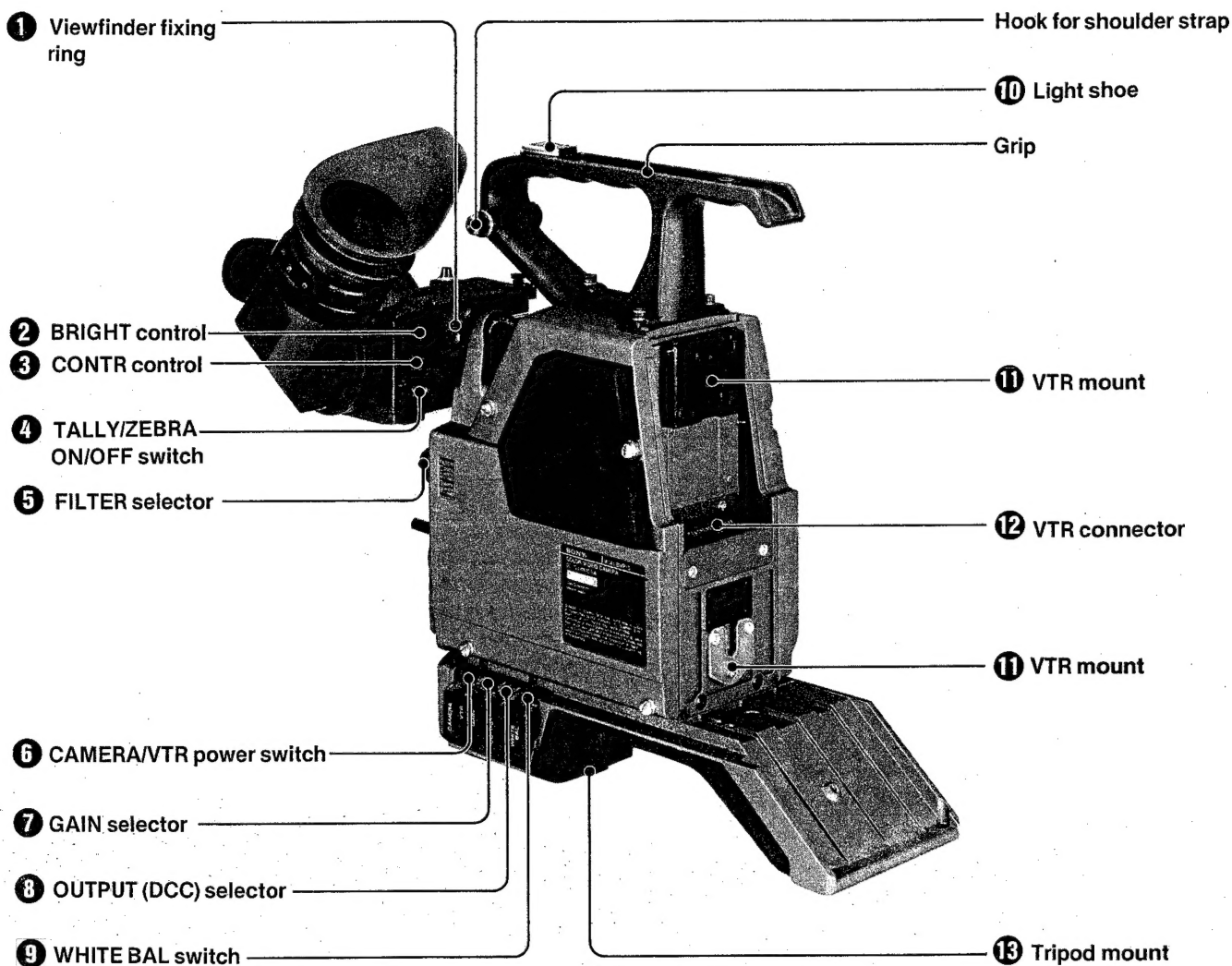
The lens is automatically closed in the following cases.

- When the CAMERA/VTR power switch is set to PREHEAT
- When the OUTPUT (DCC) selector is set to BARS
- While the automatic black balance adjustment is being performed
- When the test signal is output

### In addition to the above, the BVP-5P has the following features.

- Low power consumption
- Wide dynamic range to accept excessive light input of up to 5 times that of normal condition with the incorporated DCC (Dynamic Contrast Control) circuit
- Gen lock function when the CA-3 camera adaptor is used
- Time-code gen lock function when the BVV-1APS is used
- 2 line image enhancer
- Shading compensator to use the lens extender
- High color resolution with the detail circuit mixing the R and G signals
- Test saw signal generator
- Masking circuit
- Sharp-directional microphone
- Automatic iris adjustment mechanism
- Video level indicator
- Adjusting the audio recording level of audio channel 1
- Zebra pattern ON/OFF switch
- Attaching an external microphone
- High resolution viewfinder
- The viewfinder can be moved right and left so that you can see the viewfinder with a left eye as well as with a right eye.

## 1-2. LOCATION AND FUNCTION OF PARTS AND CONTROLS



### 1 Viewfinder fixing ring

To position the viewfinder, loosen this ring, slide the viewfinder right and left, and fasten this ring.

### 2 BRIGHT (brightness) control

Adjusts the brightness of the viewfinder screen. To obtain a brighter picture, turn this control clockwise. This control does not affect the output signal of the camera.

### 3 CONTR (contrast) control

Adjusts the contrast of the picture on the viewfinder screen.  
This control does not affect the output signal of the camera.

### 4 TALLY/ZEBRA ON/OFF switch

**ZEBRA/TALLY:** The zebra pattern and tally lamp are turned on.

**OFF:** The zebra pattern and tally lamp are turned off.

**ZEBRA:** The zebra pattern is turned on, and the tally lamp is turned off.

## 5 FILTER selector

Select the appropriate filter according to the lighting conditions.

Filter number	Color temperature	Lighting conditions
1	3200°K	sunrise, sunset, in a studio
2	5600°K + 1/4ND*	bright outdoors
3	5600°K	cloudy or rainy outdoors
4	5600°K + 1/16ND*	clear and bright scenery of snows, high mountains or seaside

\* ND: neutral density filter

## 6 CAMERA/VTR power switch

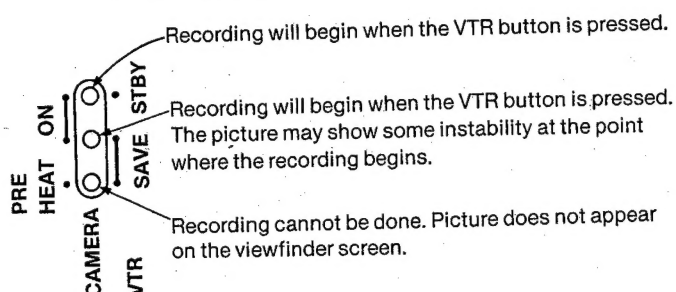
Turns on and off the power to the camera and the video cassette recorder.

**CAMERA-PREHEAT:** Power is supplied only to the heater of the picture tube in the viewfinder but the picture does not appear on the viewfinder screen. The power consumption is reduced at this position.

**CAMERA-ON:** The power is supplied to all part of the camera and the picture appears on the viewfinder screen.

**VTR-SAVE:** The head drum stops rotating and the tape is unthreaded. Because the power consumption is reduced at this position, the recording time will be longer.

**VTR-STBY:** The head drum starts rotating and the tape is threaded around the drum head.



## 7 GAIN selector

Generally set this selector to "0". When the selector is set to "9" or "18", the video output level will be raised by 9 dB or 18 dB respectively.

By setting the switch on the built-in circuit board, the video output level can be raised by 24 dB at the 18 position. For details, refer to section 2 and followings.

## 8 OUTPUT (DCC) (Dynamic Contrast Control) selector

Selects the signal fed from the VTR connector 12, TEST OUT connector 17 and to the viewfinder.

**CAM:** Signal picked up by the camera.

At the DCC ON position, the built-in DCC circuit functions.

When the DCC circuit is not used, set the selector to DCC OFF.

**BARS (DCC OFF):** Color bar signal. Set at this position to use the color bars to adjust the video monitor or to record the color bars. When the BVP-5P is used together with the BVV-1PS/BVV-1APS, the I, Q signals do not appear on the screen.

To change the character display mode, use this position.

## 9 WHITE BAL (balance) switch

**PRESET:** The white balance is set at the factory to the value of about 3200°K with the FILTER selector 5 set to "1", the white balance of the iodine lamp. Use this position when you have no time to adjust the white balance.

**A, B:** When the AUTO W/B BAL switch 25 is set to WHT, the white balance will automatically adjusted and stored in the memory A or B according to the setting of this switch. After the adjustment, the memorized white balance value is always obtained at these positions.

## 10 Light shoe

Attach a video light, etc.

## 11 VTR mount

Mount a BVV-1PS/BVV-1APS portable videocassette recorder, CA-3 camera adaptor, etc.

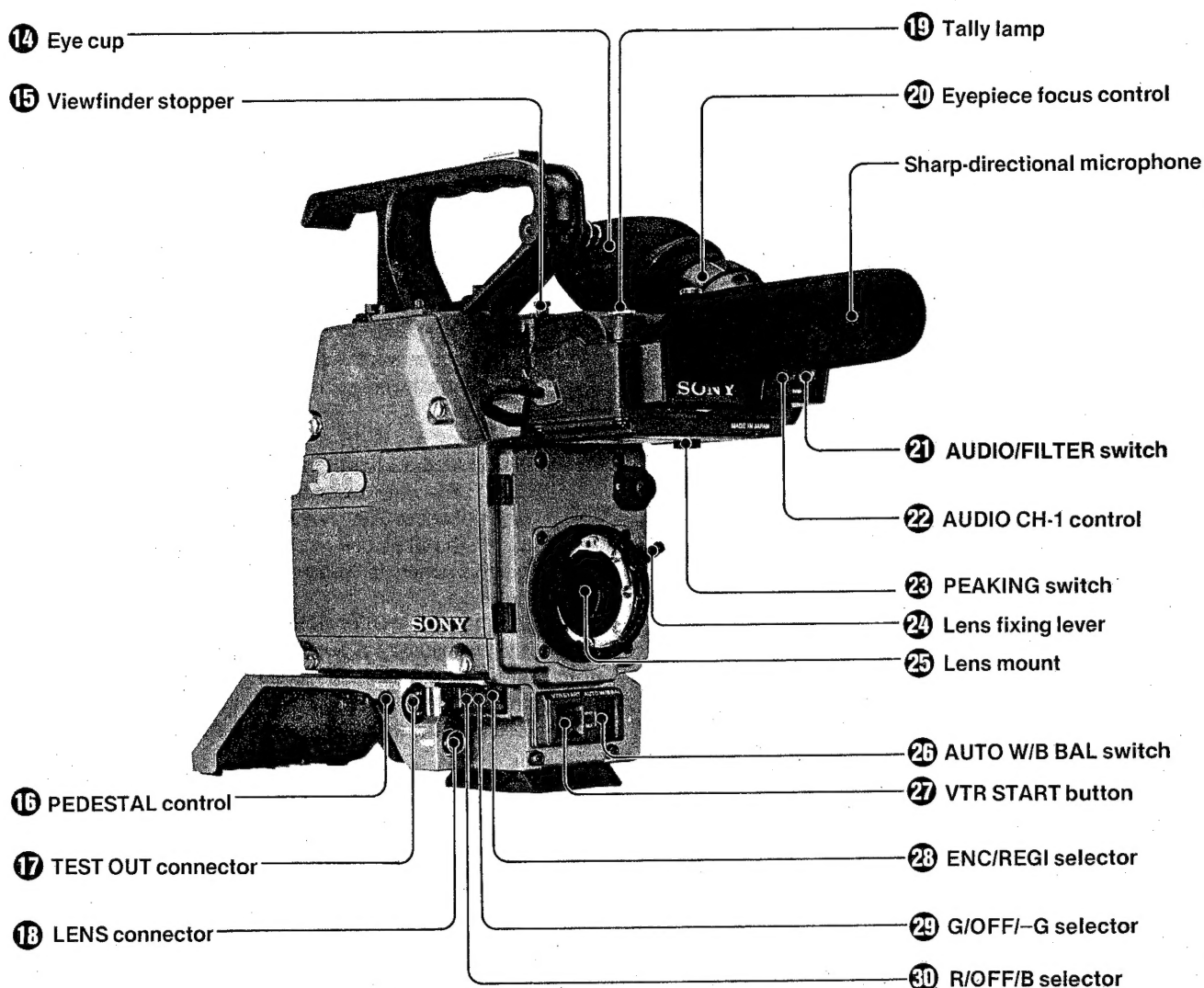
## 12 VTR connector (50 pin)

Connect the 50-pin connector of the BVV-1PS/BVV-1APS videocassette recorder, CA-3 camera adaptor, etc.

## 13 Tripod mount

Attach the tripod adaptor (supplied) here, and attach the camera to the tripod.



**14 Eye cup**

The eye cup can be removed, and the viewfinder screen can be seen directly.

**15 Viewfinder stopper**

To remove the viewfinder from the camera, pull this stopper up, and remove the viewfinder.

**16 PEDESTAL control**

Adjusts the pedestal level.

**17 TEST OUT connector (BNC type)**

The signal selected by the ENC/REGI selector **28** is fed from this connector. When the encoded signal is to be output with the selector set to ENC, be sure to terminate this connector. Or the encoded signal will not be output.

**18 LENS connector (12 pin)**

Connect a cable of the lens.  
For details on the usable lenses, consult your Sony personnel.

**19 Tally lamp**

This lamp lights or blinks when the REC lamp on the viewfinder lights or blinks. This lamp functions when the TALLY/ZEBRA ON/OFF switch is set to ZEBRA/TALLY position.

**20 Eyepiece focus control**

Adjust this control so that the clearest picture can be obtained on the viewfinder screen.  
This control does not affect the output signal of the camera.



**21 AUDIO/FILTER switch \***

**AUDIO:** Use this position when the recording level of audio channel 1 is adjusted by the AUDIO CH-1 control. The FILTER/AUDIO indicator in the viewfinder shows the audio recording level.

**FILTER:** The FILTER/AUDIO indicator in the viewfinder shows the number of the filter selected by the FILTER selector.

When the camera is used together with the BVV-1PS/BVV-1APS with the serial No. 49999 or lower, be sure to set the switch to this position.

**22 AUDIO CH-1 (audio channel-1 recording level) control \***

When the AUDIO CH-1 MANU/AUTO switch on the BVV-1PS/BVV-1APS is set to MANU and the AUDIO/FILTER switch **21** is set to AUDIO, the recording level of audio channel-1 can be adjusted manually. Adjust the level during observing the FILTER/AUDIO indicator in the viewfinder.

**23 PEAKING switch**

The outline of the picture on the viewfinder is enhanced so that the focus can easily be adjusted. Every time the switch is pressed, the function is turned on and off alternately.

**24 Lens fixing lever**

After attaching the lens to the lens mount, fasten this lever to fix the lens.

**25 Lens mount (special bayonet type)**

Attach the lens.

**26 AUTO W/B BAL (automatic white/black balance adjustment) switch**

**WHT:** For automatic white balance adjustment, set the WHITE BAL switch to AUTO and set this switch to WHT. The adjusted value will be automatically memorized.

To change the character display mode, set this switch to WHT after setting the OUTPUT (DCC) selector to BARS. Every time the switch is set to WHT, the mode is changed cyclically.

To check the BVP-5P using the self-diagnostics, set this switch to WHT, and the step for self-diagnostics advances one by one.

**BLK:** For automatic black balance and black set level adjustment, set this switch to BLK. The adjusted value will be automatically memorized.

- The switch automatically returns to the center position when it is released after setting the switch to WHT or BLK.

**27 VTR START button**

Press to start recording. To stop, press this button again. This button functions the same as the VTR button on the lens.

**28 ENC/REGI selector**

Selects the signal fed from the TEST OUT connector **17**.

**ENC:** The encoded signal (VBS) of R, G and B signals

**REGI:** Signal selected by the R/OFF/B selector **30** and G/OFF/-G selector **29** (R, G, B, R-G or B-G signal)

**29 G/OFF/-G selector**

The signal fed from the TEST OUT connector is selected when the ENC/REGI selector **28** is set to REGI.

**G:** G (green) signal

**OFF:** The G signal is cut.

**-G:** -G (phase reversed green) signal

**30 R/OFF/B selector**

The signal fed from the TEST OUT connector is selected when the ENC/REGI selector **28** is set to REGI.

**R:** R (red) signal

**OFF:** The R and B signals are cut.

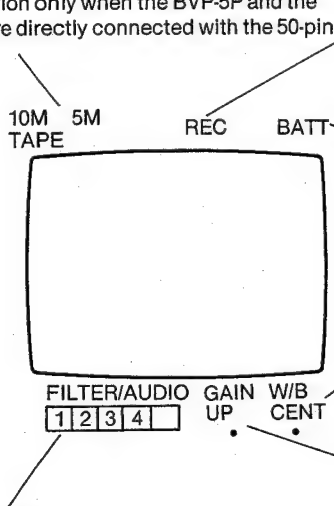
**B:** B (blue) signal

\* These switch and control are not effective when the BVP-5P is used together with the BVV-1PS with the serial No. 49999 or lower.

Indicators in the viewfinder

Tape remaining time indicators

Show in minutes the amount of tape remaining for recording. These indicators function only when the BVP-5P and the BVV-1PS/BVV-1APS are directly connected with the 50-pin connectors.



**REC (recording) indicator (red)**  
Lights during recording, and blinks when one of the warning lamps on the BVV-1PS/BVV-1APS blinks or lights. For details, refer to the instruction manual furnished with the connected VTR.

**BATT (battery) indicator (red)**  
The indicator starts blinking several minutes before the battery is discharged to the level which cannot perform the operation of the camera, and keep lighting at that level.

**W/B CENT (white balance/black balance) indicator (orange)**  
Lights when the automatic white balance and black balance adjustment has been completed and goes off after 5 seconds. If the automatic adjustment cannot be done, the indicator blinks for about 5 seconds.

**GAIN UP indicator**  
Lights when the GAIN selector is set to "9" or "18".


**FILTER/AUDIO indicator**

When the AUDIO/FILTER switch is set to AUDIO, the audio level is indicated. When the switch is set to FILTER, the number of the filter selected by the FILTER selector lights. (For details, refer to "Manual audio recording level adjustment" on page 1-36.)

Tape remaining time indicators and the remaining time

These indicators function only when the BVP-5P and the BVV-1PS/BVV-1APS are directly connected with the 50-pin connectors.

Remaining time	20	15	10	5	2	0 (minutes)
Indicators	10M 5M	10M	5M	5M		
REC indicator	REC				REC*	

 : Blinks in 1 Hz interval  
\* : Blinks in 4 Hz interval

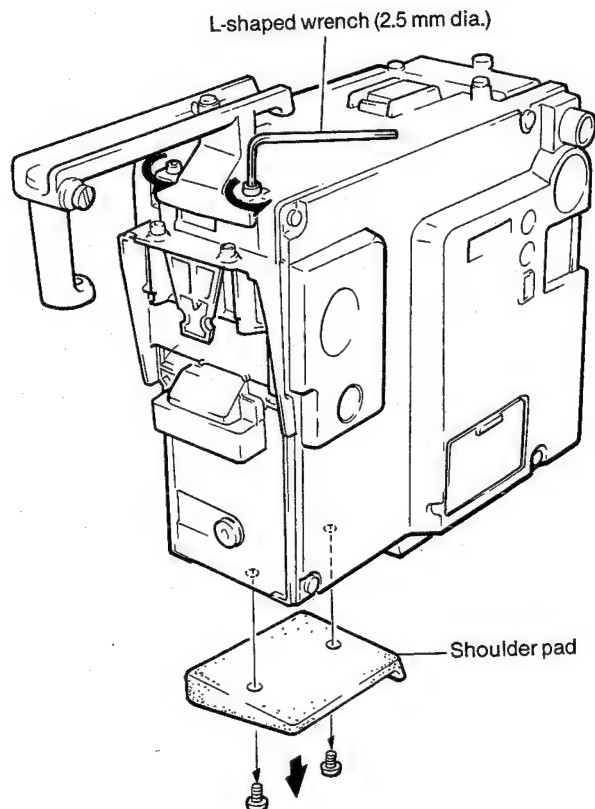
## 1-3. SET-UP

### 1-3-1. Set up with the BVV-1PS/BVV-1APS VTR

The following shows an example of how to set up the BVP-5P and the BVV-1PS/BVV-1APS portable videocassette recorder. To set up the BVP-5P with another unit, refer to the instruction manual furnished with the unit. Use the grip of either the BVP-5P or the VTR. The unused grip should be removed first.

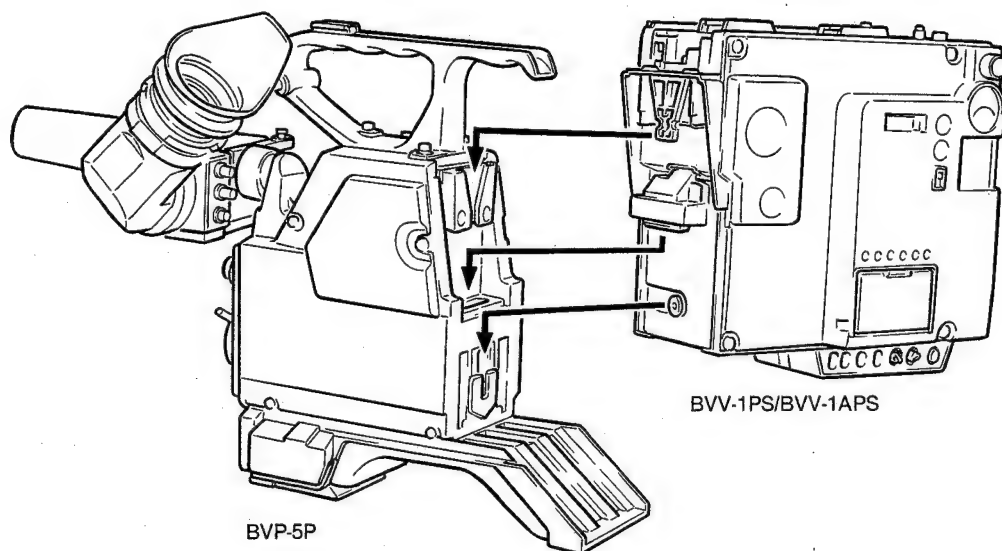
**When the grip of BVP-5P is used**

- 1 Remove the grip and shoulder pad of the VTR.

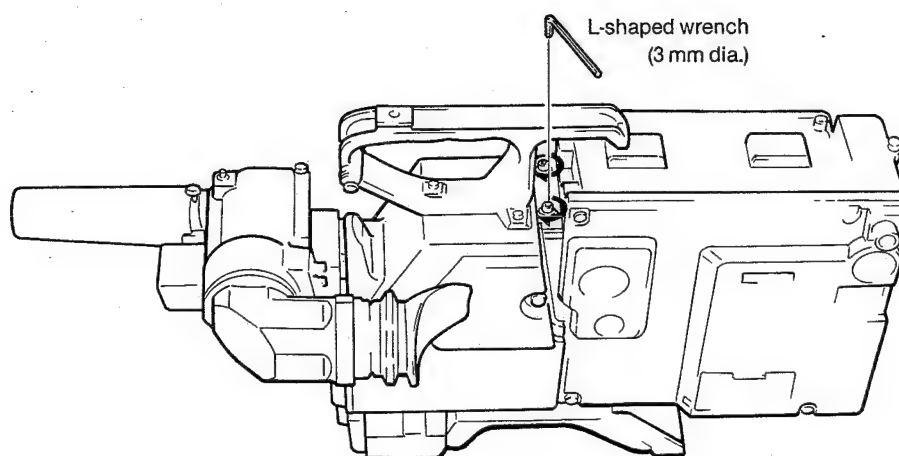


- 2 Attach the supplied screws to the holes where the grip was attached.

**3** Attach the VTR to the camera.

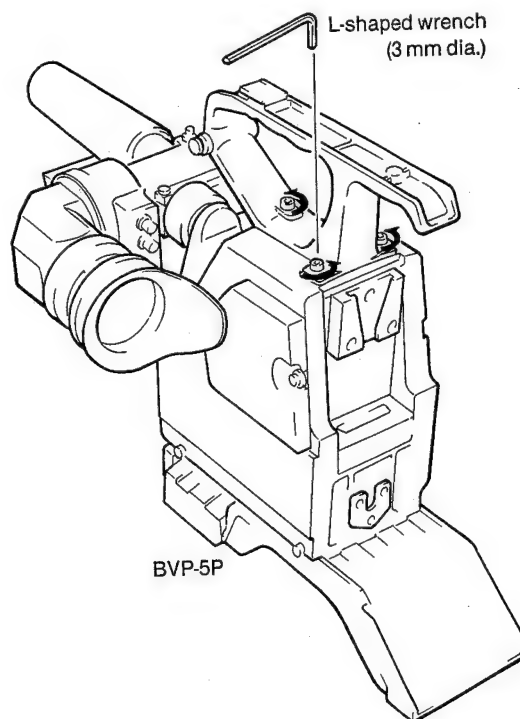


**4** Fasten the screws (supplied with the VTR) securely.

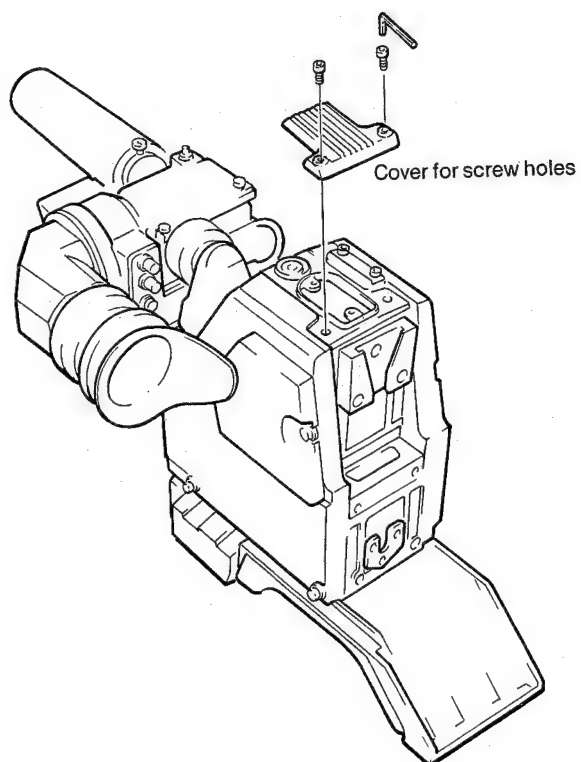


**When the grip of the VTR is used**

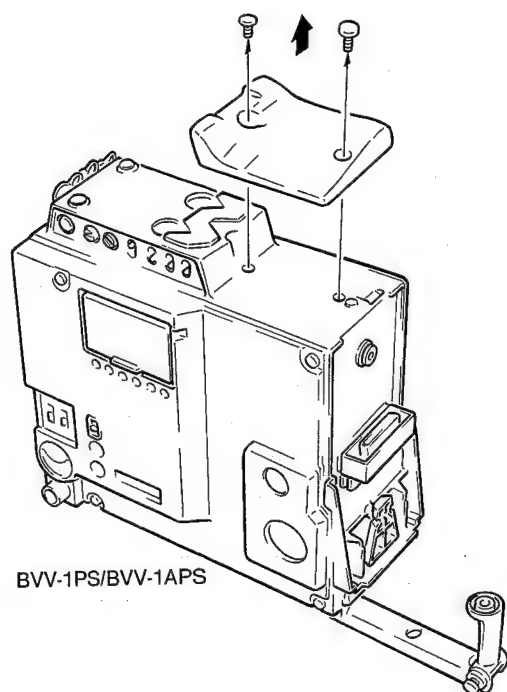
- 1** Remove the grip of the BVP-5P.



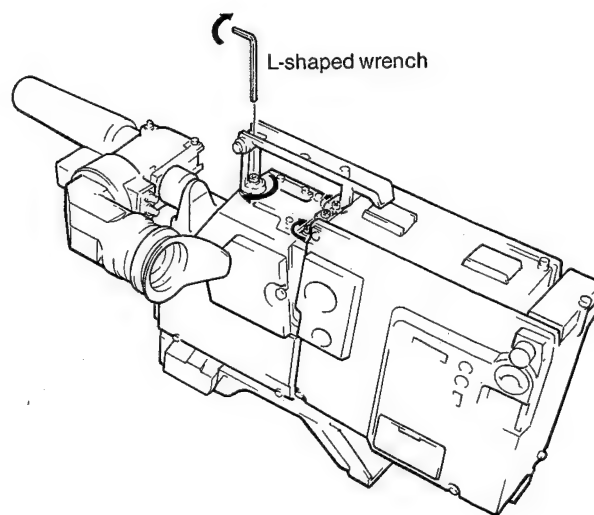
- 2** Attach the cover (supplied) to the screw holes of the grip.



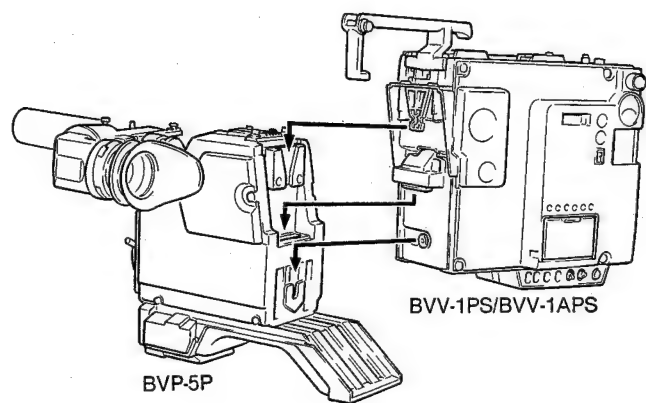
**3** Remove the shoulder pad of the VTR.



**5** Fasten the screws (supplied with the VTR) securely.

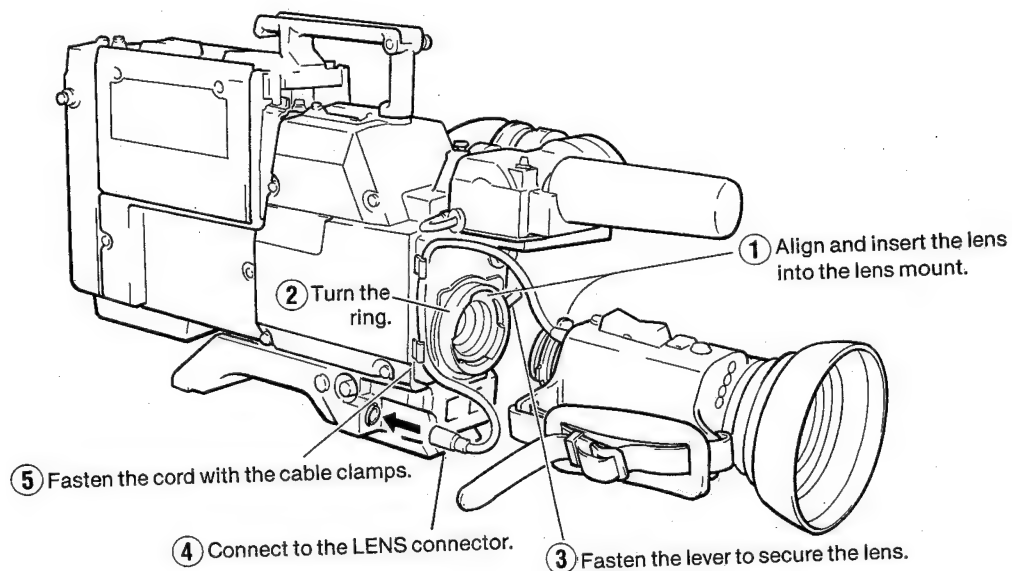


**4** Attach the VTR to the camera.

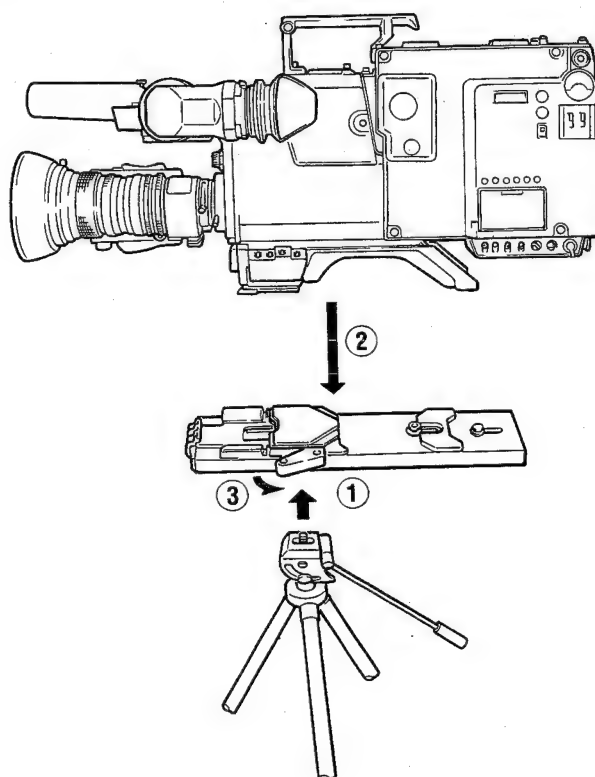


### 1-3-2. Lens Attachment

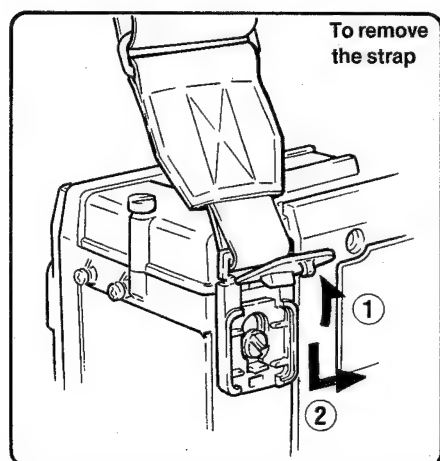
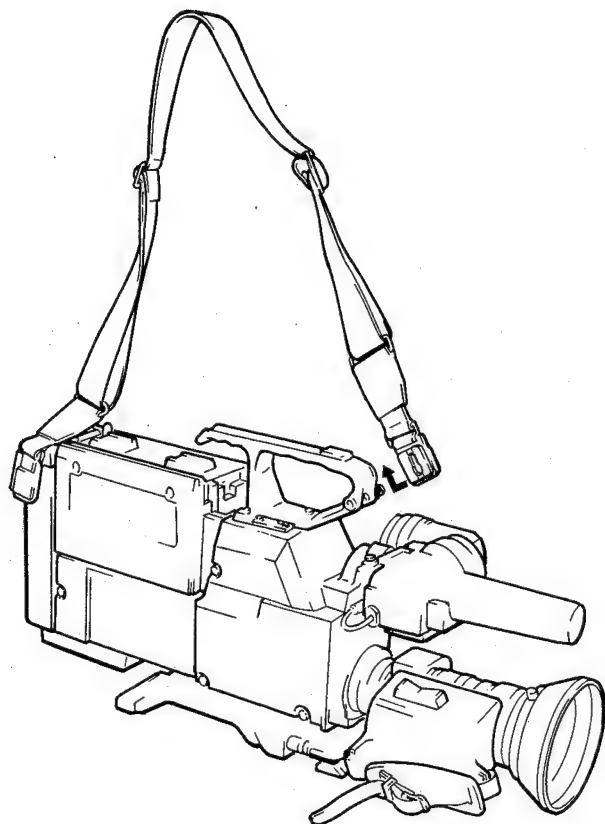
- For the details on the lens, refer to the instruction manual furnished with the lens.



### 1-3-3. Tripod Attachment



### 1-3-4. Shoulder Strap Attachment



### 1-4. POWER SOURCES

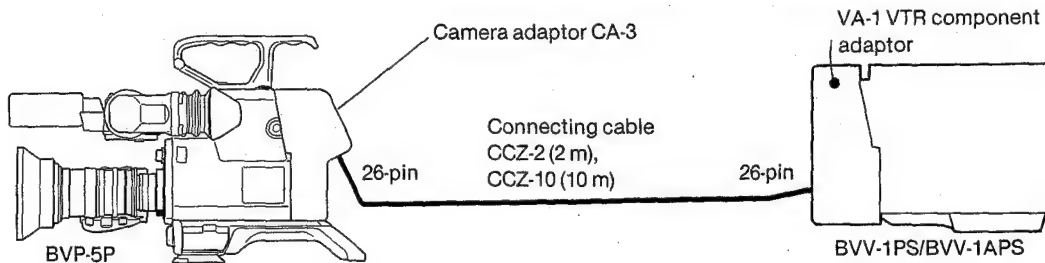
The power is supplied from the unit connected to the 50-pin connector on the BVP-5P. Please refer to the instruction manual furnished with the unit connected to the 50-pin connector.



## 1-5. CONNECTIONS

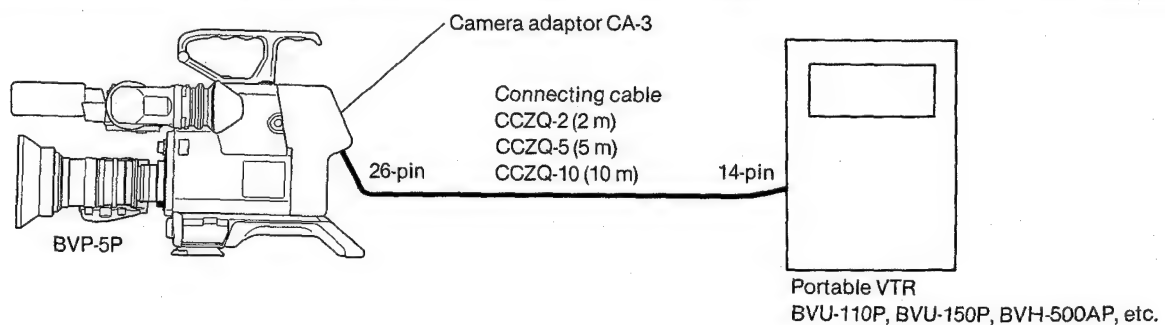
The BVP-5P can be used as follows besides being directly connected to the BVV-1PS/BVV-1APS with the 50-pin connectors.

### Connection with the BVV-1PS/BVV-1APS by using the connecting cable



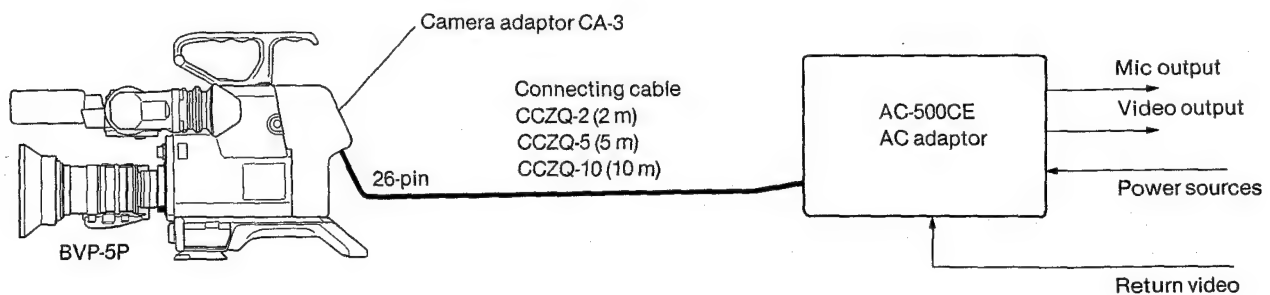
- The VA-1VP VTR composite/component adaptor can be connected in the same way.
- A Betacam series portable videocassette recorder such as a BVW-25P can also be connected using the CCZ cable.

### Connection with a conventional portable VTR



- When the power is supplied from the VTR by using a camera cable of 10 meters long, the picture quality after the BATT indicator in the viewfinder starts blinking is not guaranteed.

### Connection with the AC-500CE

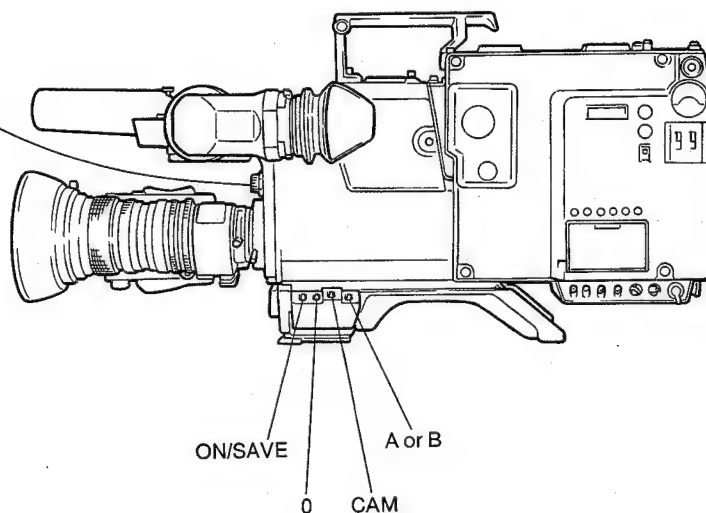


- When the AC-500CE is connected to the VTR with a 4-pin cable, the power will be supplied to the VTR.

## 1-6. ADJUSTMENTS

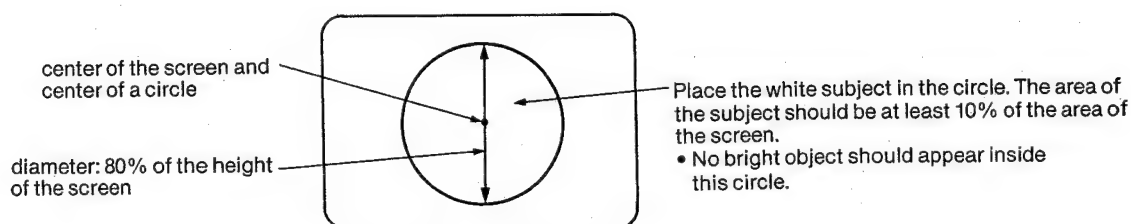
### 1-6-1. White Balance and Black Balance Adjustments

- 1 Set the FILTER selector to the position corresponding to the lighting conditions.



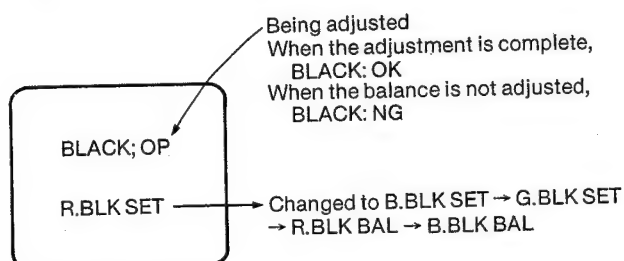
- 2 Set the switches as illustrated.

- 3 Place a white pattern under the same lighting conditions as those under which the recording will be made, and zoom up on a pattern.  
A white object such as white cloth, white wall, etc. can be used instead of the white pattern.  
The minimum white area required for adjustment is as follows.



- 4 If the automatic iris is not equipped, adjust the iris. If the automatic iris is equipped, set the iris auto/manual switch to auto.

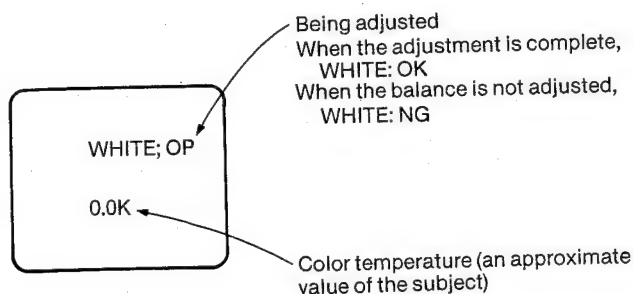
- 5** Set the AUTO W/B BAL switch to BLK. The switch automatically returns to the center position when it is released. During adjustment, the following characters are displayed on the viewfinder screen.



After several seconds, the black balance is automatically adjusted and the W/B CENT indicator in the viewfinder will light. The adjusted value is stored in the memory. The W/B CENT indicator will go out after about 5 seconds. While the W/B CENT indicator is lit, the white balance adjustment can be started by setting the AUTO W/B BAL switch to WHT.

- The lens closes during adjustment of the black balance.

- 6** Set the AUTO W/B BAL switch to WHT. During adjustment, the following characters are displayed on the viewfinder screen.



After about 1 second, the white balance is automatically adjusted and the W/B CENT indicator in the viewfinder will light.

The adjusted value is stored in the memory, A or B, designated in step 1. The W/B CENT indicator will go out after about 5 seconds.

The white balance and black balance adjustments have been completed.

- The character display can be deleted from the screen. (See "1-9. CHARACTER DISPLAY ON THE VIEWFINDER".)
- When the lighting condition of the subject is changed, adjust the white balance only. Readjustment of the black balance is not required.
- The black balance adjustment is required only in the following cases. Except for these cases, readjustment is not necessary even if the power is turned off.
  - when the BVP-5P is used for the first time
  - when the BVP-5P is used after a long period of non-use
  - when the operating temperature is radically changed
- When the zoom lens with automatic iris is used, the hunting may occur. In this case, adjust the AUTO IRIS GAIN control on the lens. (For details, refer to the instruction manual furnished with the lens.)
- When the AUTO W/B BAL switch is set to BLK, the setting of the GAIN selector is automatically changed and the noise may appear on the viewfinder screen, but this is not a problem. While the W/B CENT indicator is lighting, the next adjustment can be started. In this case, the indicator goes off when the switch is set to the other position, and lights again when the adjustment finished.

### When the black balance cannot be adjusted

The display on the viewfinder screen changes to "BLACK; NG", and the following displays will appear. Adjust the black balance again.

Display	Causes
HARD ERROR TRY AGAIN	The reference voltage of adjustment cannot be stored.
OVER FLOW TRY AGAIN	The error between the reference value and the current value is too large to adjust the balance automatically.
TIME LIMIT TRY AGAIN	The adjustment cannot be completed within the defined adjustment times.
IRIS: NOT CLOSED TRY AGAIN	The iris has not been closed.
BOUNCING: TOO LONG TRY AGAIN	The black set cannot be adjusted within the defined period of time.

### When the white balance cannot be adjusted

The display on the viewfinder changes to "WHITE; NG", and the followings are displayed. Take a necessary step, and adjust the white balance again.

Display	Causes
LOW LEVEL TRY AGAIN	The video output level is too low. Increase the illumination or set the GAIN selector to the appropriate position.
HARD ERROR TRY AGAIN	The reference voltage of adjustment cannot be stored.
TIME LIMIT TRY AGAIN	The adjustment cannot be completed within the defined adjustment times.
C.TEMP.LOW CHG.FILTER TRY AGAIN	The color temperature is too low. Select the appropriate filter with the FILTER selector.
C.TEMP.HIGH CHG.FILTER TRY AGAIN	The color temperature is too high. Select the appropriate filter with the FILTER selector.

### If the W/B CENT indicator blinks

Check that the proper filter has been selected and adjust the white balance and black balance again.

### When the WHITE BAL switch is set to PRESET

The white balance at about 3200°K can be obtained when the FILTER selector is set to "1". Adjust the black balance only by setting the AUTO W/B BAL switch to BLK.

### Memorizing the white balance and black balance value

The BVP-5P has the memory function for the adjusted value of the white balance and the black balance. The memory A and B can store the value adjusted at each filter position independently so that up to 8 adjusted values, 4 for memory A and 4 for memory B, can be stored.

Memory A for filter 1

filter 2

filter 3

filter 4

Memory B for filter 1

filter 2

filter 3

filter 4

The memorized value will be retained for about a week after the power is turned off or until readjustment is performed.

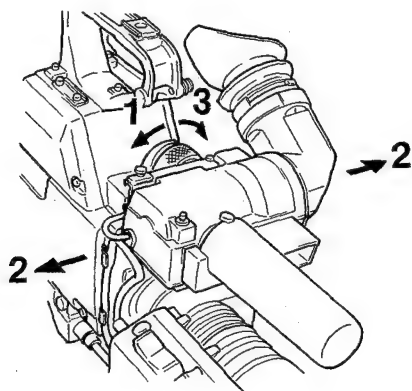
- The number of memories to store the adjusted values can be reduced to two, one for A and one for B, by setting the switch on the built-in circuit board. In this case, the adjusted value will not correspond to the selection of the color temperature filter. Refer to section 2 and following.

### 1-6-2. Black Set Adjustment

The black set is adjusted by the AUTO W/B BAL switch together with the black balance.  
For details, refer to section 2 and followings.

### 1-6-3. Viewfinder Adjustment

The viewfinder can be moved right and left to place the eye cup to the easy-to-see position, or the position so that you can see the screen with the left eye.



- 1 Loosen the fixing ring.
- 2 Slide the viewfinder right and left to the desired position.
- 3 Fasten the ring.

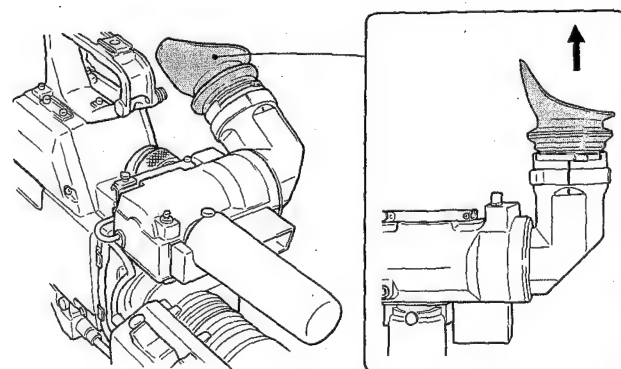
- To install the camera into the carrying case, slide the viewfinder fully to the left seen from the lens side.
- To remove the viewfinder from the camera, loosen the viewfinder fixing ring, and remove the viewfinder while pulling the stopper up.

#### To remove the eye cup

When the eye cup is removed, the viewfinder screen can be seen directly.

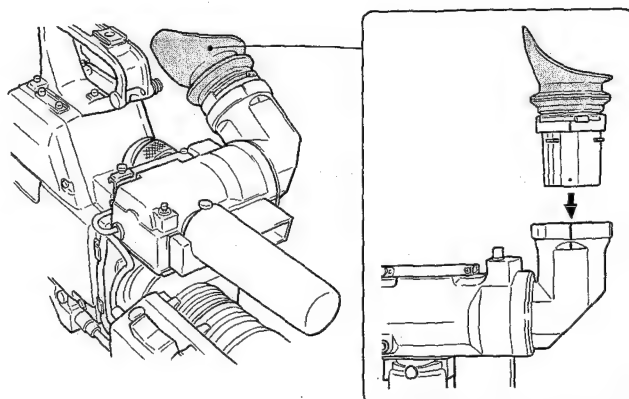
#### How to remove the eye cup

- 1 Turn the eye cup ring so that the lines are aligned.
- 2 Pull out the eye cup.



#### How to replace the eye cup

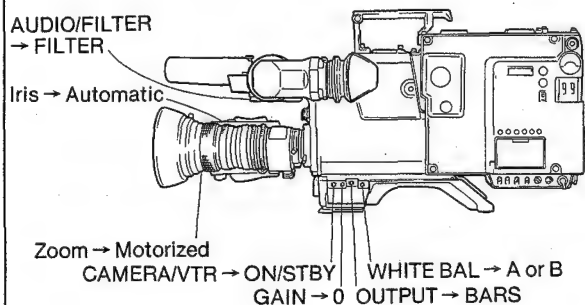
- 1 Align the line on the viewfinder and the dot on the eye cup, and insert the eye cup into the viewfinder.
- 2 Turn the eye cup ring until it stops.



## 1-7. OPERATION CHECKS

The following is an example of operation. For details on operation of the lens, please refer to the instruction manual furnished with the lens.

1. Set the switches as follows:



2. Adjust the viewfinder.

3. Make sure that the color bars appear on the viewfinder screen.

4. Set the OUTPUT (DCC) selector to BARS, and set the AUTO W/B BAL switch to WHT. Check that the character display mode is changed to MODE 1 → MODE 2 → MODE 3 → every time the AUTO W/B BAL switch is set to WHT.

5. Turn the BRIGHT and CONTR controls so that the color bars on the viewfinder screen are clear.

6. Change the FILTER selector setting from 1 → 2 → 3 → 4, and check that the corresponding number of the FILTER indicators in the viewfinder screen lights.

7. Set the OUTPUT (DCC) selector to CAM.

8. Point the camera at a subject.

9. Focus on the subject by turning the focus ring. Check that the picture appears on the viewfinder screen.

10. Check the motorized zooming.

11. Set the zoom in the manual mode.

12. Check the manual zooming.

13. Set the zoom in the motorized mode.

14. Point the camera at subjects under different brightness levels, and check that the automatic iris adjustment functions.

15. Set the iris in the manual mode.

16. Turn the iris ring to check the manual iris adjustment.

17. Press and hold down the instant auto button to temporarily switch to automatic iris adjustment. Point the camera at subjects under different brightness levels to check the adjustment.

18. Set the iris in the automatic mode.

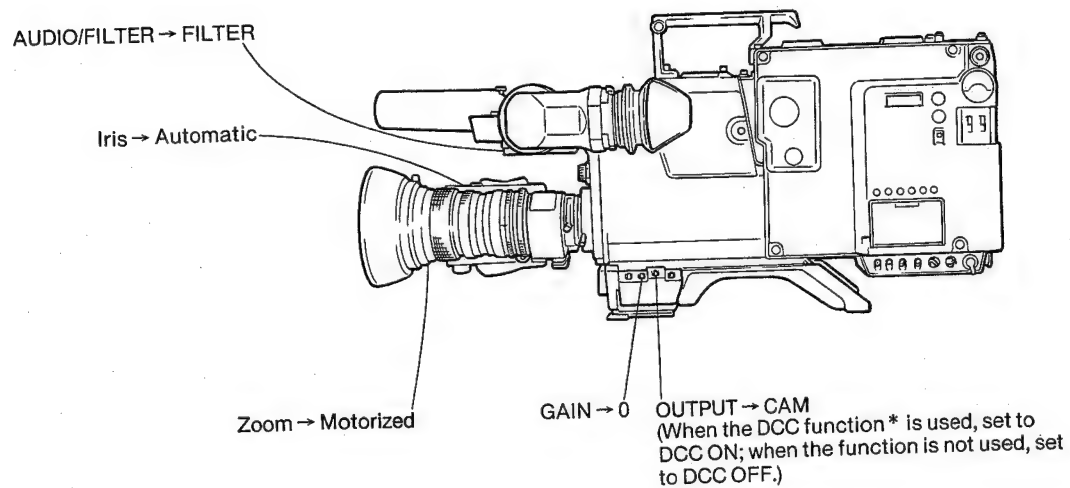
19. Set the GAIN selector to 0 to 9 and then to 18. Check that the iris closes and that the GAIN UP indicator lights.

20. Set the GAIN selector to 0.

## 1-8. OPERATION

### 1-8-1. Preparations

Before operation, set the switches as follows.



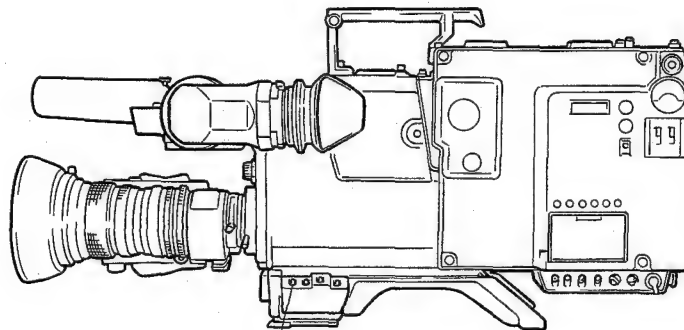
#### \* DCC function

When an object against a background of high luminance such as sky is shot and the output level is adjusted to the object, the output level of the background will be saturated and the background will be blurred. The DCC function will be effective to shoot the background clearly as well as the object. Use this function in the following cases.

- To shoot people in the shade on a fine day.
- To simultaneously shoot the people in a car or in a room and the outdoor subject through a window
- To shoot the scene with high contrast

## 1-8-2. Camera Recording

- 1 Turn on the power of the camera and the connected equipment.



CAMERA/VTR → ON/STBY

- 2 Insert a cassette tape.
- 3 Select the appropriate filter.
- 4 Adjust the white balance and black balance.  
**When the white balance and black balance value has been memorized**  
 Set the WHITE BAL switch to A or B.
- 5 Point the camera at the subject and adjust focus and zoom.
- 6 Press the VTR START button to start recording. The REC indicator in the viewfinder lights during recording.
- 7 To stop recording, press the VTR START button again.

**When the white balance and black balance value is not memorized but you want to start recording quickly**  
 Set the WHITE BAL switch to PRESET and set the AUTO W/B BAL switch to BLK. The white balance and black balance at about 3200°K is obtained.

### To adjust the white balance and black balance

- 1) Set the WHITE BAL switch to A or B.
  - 2) Shoot the white subject.
  - 3) Set the AUTO W/B BAL switch to BLK. When the W/B CENT indicator in the viewfinder lights and "BLACK: OK" appears on the viewfinder screen, the black balance is adjusted.
  - 4) Set the AUTO W/B BAL switch to WHT. When the W/B CENT indicator in the viewfinder lights and "WHITE: OK" appears on the viewfinder screen, the white balance is adjusted.
- For details, refer to "1-6-1. White Balance and Black Balance Adjustments".

### Checking the video level

The zebra pattern will appear on the part of the viewfinder screen where the video level of the picture is 70% (IRE UNIT). For manual iris adjustment, you can use this function for the appropriate setting. The zebra pattern can be disappeared by the TALLY/ZEBRA ON/OFF switch. However when the switch on the built-in circuit board is set to OFF, the zebra pattern cannot be turned on and off with the TALLY/ZEBRA ON/OFF switch. For details, refer to section 2 and followings.

### Recording under the insufficient lighting

When the lighting condition is insufficient, "LOW LIGHT" is displayed on the viewfinder screen and the colon blinks. In this case, a clear picture cannot be obtained. Set the GAIN selector to "9" or "18". The video output level can be raised by 9 dB by setting the GAIN selector to 9, and 18 dB by setting to 18. If desired, the video output level can be raised by 24 dB with the selector set to 18 by setting the switch on the built-in circuit board properly. Refer to section 2 and followings.

- Normally set the selector to "0".



## 1-9. CHARACTER DISPLAY ON THE VIEWFINDER

On the viewfinder screen, the setting of switches, the condition of automatic adjustments, etc. can be displayed.

There are three kinds of character display mode, and the displayed items differ in each mode.

In mode 1, the minimum items are displayed, and in mode 3, the maximum items are displayed. In mode 2, several items are added to the items in mode 1. The selected mode is displayed on the viewfinder screen.

### 1-9-1. To Change the Character Display Mode

- 1 Set the CAM/BARS selector to BARS.
- 2 Set the AUTO WHT/BLK selector to WHT. Every time the selector is set to WHT, the mode is changed cyclically, 1 → 2 → 3 → 1 →.

The selected mode is memorized for about a week even if the power is turned off. However when the memory is the preset value, mode 3 is automatically selected.

### 1-9-2. Display of Switch Setting

The setting of switches is displayed one by one for about 3 seconds each when the power is turned on (except the display of GAIN). When the setting is changed, the display also appears for about 3 seconds and then goes out.

x: not displayed

o: displayed

Display	Contents	Mode		
		1	2	3
GAIN: 0 DB	Setting of GAIN selector (0 DB or 9 DB, 18 DB)	x	x	o
DCC: ON	DCC selection of OUTPUT (DCC) selector (ON or OFF)	o	o	o
FILTER: 1	Setting of FILTER selector (1 or 2, 3, 4)	x	x	o
WHITE: PRESET	Setting of WHITE BAL selector (PRESET or A CH, B CH)	o	o	o
0.0K	Color temperature *	x	o	o
WHITE: PRESET	Setting of WHITE BAL selector (PRESET or A CH, B CH)	o	o	o
0.0K	Color temperature *	x	o	o

\* The value of color temperature is 1000 times that of the displayed figure, and is an approximate value.

### 1-9-3. Warning Display

When the conditions for shooting are not satisfied, the following characters are displayed.

Display	Contents	Mode		
		1	2	3
:MEMORY NG (Colon blinks.)	Memory of white balance and black balance is the preset value. Adjust the white and black balance.	o	o	o
:LOW LIGHT (Colon blinks.)	The lighting condition is insufficient, and the video output level is lower than the rated value.	x	x	o

## 1-9-4. Display of Automatic Adjustments

The characters are displayed for about 5 seconds, and go out.

Display	Contents	Mode		
		1	2	3
WHITE; OP 0.0K	White balance is being adjusted. Color temperature	x	x	o
WHITE; OK 0.0K	White balance adjustment completes.	x	x	o
WHITE; NG LOW LEVEL TRY AGAIN	White balance cannot be adjusted because the video output level is too low. Readjust.	x	o	o
WHITE; NG HARD ERROR TRY AGAIN	White balance cannot be adjusted because the reference voltage of adjustment cannot be stored. Readjust. *	x	o	o
WHITE; NG TIME LIMIT TRY AGAIN	White balance cannot be adjusted within the defined adjustment times. Readjust. *	x	o	o
WHITE; NG C.TEMP.LOW CHG. FILTER TRY AGAIN	White balance cannot be adjusted because the color temperature is too low. Select the appropriate filter and readjust.	x	o	o
WHITE; NG C.TEMP.HIGH CHG. FILTER TRY AGAIN	White balance cannot be adjusted because the color temperature is too high. Select the appropriate filter and readjust.	x	o	o

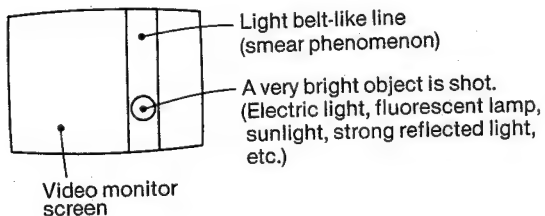
Display	Contents	Mode		
		1	2	3
BLACK; OP R.BLK SET	Black balance is being adjusted. Adjusting item (Changed to B.BLK SET, G.BLK SET, R.BLK BAL, B.BLK BAL)	x	o	o
BLACK; OK	Black balance adjustment completes.	x	o	o
BLACK; NG HARD ERROR TRY AGAIN	Black balance cannot be adjusted because the reference voltage of adjustments cannot be stored. Readjust. *	x	o	o
BLACK; NG OVER FLOW TRY AGAIN	Black balance cannot be adjusted because the error between the reference value and the present value is too large. Readjust. *	x	o	o
BLACK; NG TIME LIMIT TRY AGAIN	Black balance cannot be adjusted within the defined adjustment times. Readjust. *	x	o	o
BLACK; NG IRIS; NOT CLOSED TRY AGAIN	Black balance cannot be adjusted because the iris does not close. Readjust.	x	o	o
BLACK; NG BOUNCING TOO LONG TRY AGAIN	Black set cannot be adjusted within the defined period of time. Readjust. *	x	o	o

\* If "BLACK: NG" or "WHITE: NG" is displayed repeatedly, the inside of the camera should be checked. Refer to section 2 and following.

## 1-10. SPECIAL CHARACTERISTICS OF A CCD

### Smear phenomenon

This may appear when a very bright object is shot.



### Patterned noise

This may appear uniformly over the entire monitor screen when the camera is operated at high temperature.

### Wavy picture

This may appear when fine stripes, straight lines, etc., are shot. Their images monitored on the screen look wavy.

## 1-11. PRECAUTIONS

**Avoid rough handling or mechanical shock to the camera.**

### After using the camera

Turn off the power of a equipment connected to the camera.

### Operating and storage locations

Avoid operating and storing the camera in the following location.

- Extreme hot or humid places (The operating temperature is from  $-20^{\circ}\text{C}$  to  $+45^{\circ}\text{C}$ ,  $-4^{\circ}\text{F}$  to  $+123^{\circ}\text{F}$ .)
- Places subject to direct sunlight, excessive dust, mechanical vibration or shock.

Keep the camera in a horizontal positions and allow adequate air circulation.

**Clean the viewfinder lens with a lens cleaner available at camera stores.**

Do not use any type of solvent, such as alcohol, benzine or thinner.

## 1-12. SPECIFICATIONS

### Camera

Image device	2/3 inch interline-transfer CCD, 3-chip
System	RGB 3-CCDs (with quartz filter)
Spectral system	F1.4 prism system
Built-in filters	1: 3200°K 2: 5600°K + 1/4ND 3: 5600°K 4: 5600°K + 1/16ND
Lens mount	Special bayonet mount
Video output	PAL, 1.0 V (p-p), 75 ohms, unbalanced, sync negative
Connectors	Two outputs (TEST OUT, VTR connectors) VTR: 50 pin (video output, microphone output, sync output, power input) TEST OUT: BNC type LENS: 12 pin
Sensitivity	2000 lux with f4.5 (typical), 89.9% reflectance
Minimum subject illumination	15 lux (f1.4, +18 dB gain)
Video signal-to-noise ratio	55 dB (typical)
Horizontal resolution	550 lines (center)
Registration	Less than 0.05% for whole screen
Geometric distortion	Not identified
Power requirements	12 V dc (10.5 - 17 V)
Power consumption	10.5 W
Operating temperature	-20°C to +45°C (-4°F to +123°F)
Storage temperature	-20°C to +60°C (-4°F to +140°F)
Weight	3.2 kg with viewfinder (7 lb 1 oz)
Dimensions	Unit: mm (inches)

### Viewfinder

Picture tube	1.5-inch monochrome BRIGHT control, CONTR control, TALLY/ZEBRA ON/OFF switch, PEAKING switch, AUDIO/FILTER switch, AUDIO CH-1 control
Resolution	500 TV lines
Microphone	Sharp-directional

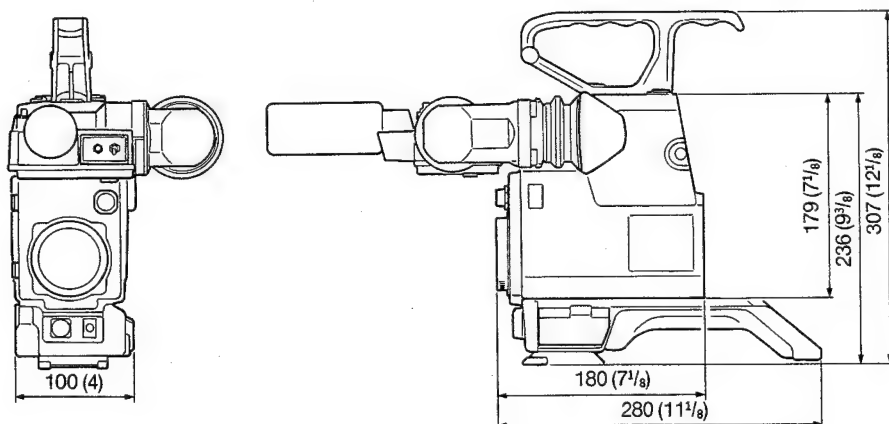
### Supplied accessories

Tripod adaptor × 1
Extension board × 1
Extractor × 1
L-shaped wrench (2.5 mm dia.) × 1
L-shaped wrench (3 mm dia.) × 1
50-pin cap × 1
Rain-proof cover × 1
Cover for screw holes × 1
Screw × 2
Operation and maintenance manual × 1

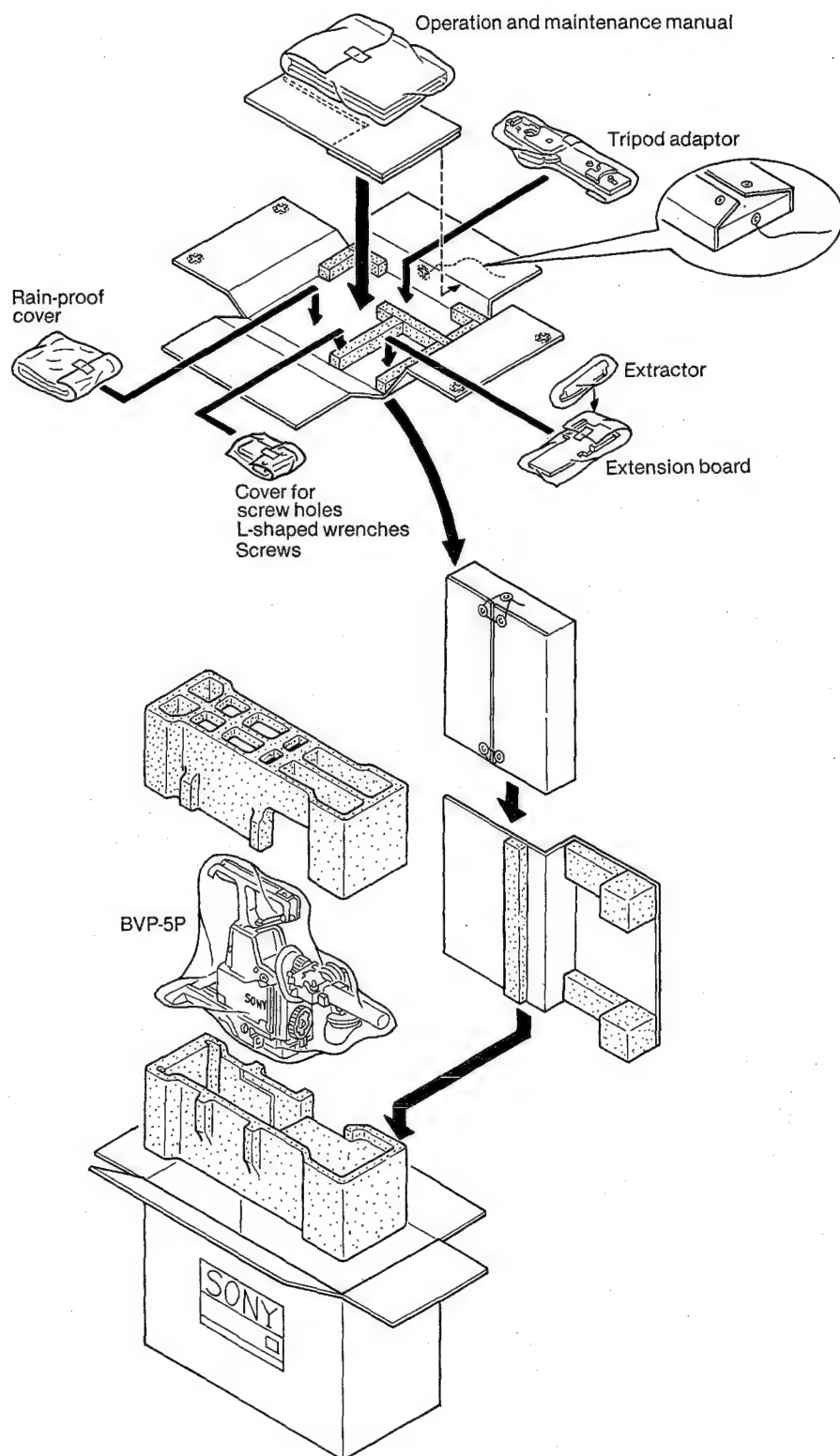
### Recommended equipment

Betacam series portable videocassette recorder BVV-1PS, BVV-1APS, BVW-25P
Camera adaptor CA-3
AC adaptor AC-500CE
Microphone C-74
Camera cable CCZQ-2 (2m), CCZQ-5 (5m), CCZQ-10 (10m)
CCZ-2 (2m), CCZ-10 (10m)

Design and specifications subject to change without notice.



## 1-13. PACKING OF THE BVP-5P



## 1-14. HOW TO OPERATE THE BETACAM SYSTEM BVW-105P

### 1-14-1. Features

#### Compact and lightweight

The BVP-5P camera using three-chip CCD solid state image sensor, the BVV-1PS/BVV-1APS VTR, lens, battery and cassette tape together weigh only about 8.95 kg.

#### Wireless system

The camera, VTR, viewfinder, battery, microphone, etc. can be connected without using cables.

#### Low power consumption

The power consumption is so low that the unit can be operated for about 50 minutes with a single NP-1 battery pack at normal temperature when the BVV-1PS/BVV-1APS is used together.

#### Video and audio confidence

The video and audio confidence system makes it possible to check the recording picture and sound.

#### High-quality picture

A newly-developed recording system using 1/2-inch cassette tape for the Beta-format has greatly improved the picture quality, which now approaches the quality of the 1-inch VTR picture.

#### Built-in time code generator

A built-in time code generator allows simultaneous recording of the time code during operation. The user bit can also be recorded.

#### Independent time code track

The time code track is independent of the video track so that time code recording or erasing is possible using an editing machine.

#### Two audio channels

The sound from a built-in microphone or external microphones or the sound from other audio sources can be recorded on two audio channels separately.

#### Composite shooting

Videocassette programs can be composed shot-by-shot without any glitches between scenes because vertical-interval timing with a tape back-up feature guarantees a clean cut every time.

#### Warning system

If there is a problem, warning lamps allows you to monitor the operation and alarm is sounded simultaneously from the speaker or earphone.

#### Tape remaining time indicator

The tape remaining time indicators are situated in the viewfinder.

#### Use of the wireless microphone system

A receiver of the Sony wireless microphone system can be attached to the system.

#### Additional battery pack

One more battery pack can be used together with the battery pack installed in the battery compartment of the BVV-1PS/BVV-1APS.

#### Dolby NR\* (Noise Reduction) C-type system for improving sound quality

The newly developed C-type Dolby NR system is employed for an improved S/N ratio and wider dynamic range. To activate the Dolby NR circuit, refer to section 2 of the BVV-1PS/BVV-1APS instruction manual.

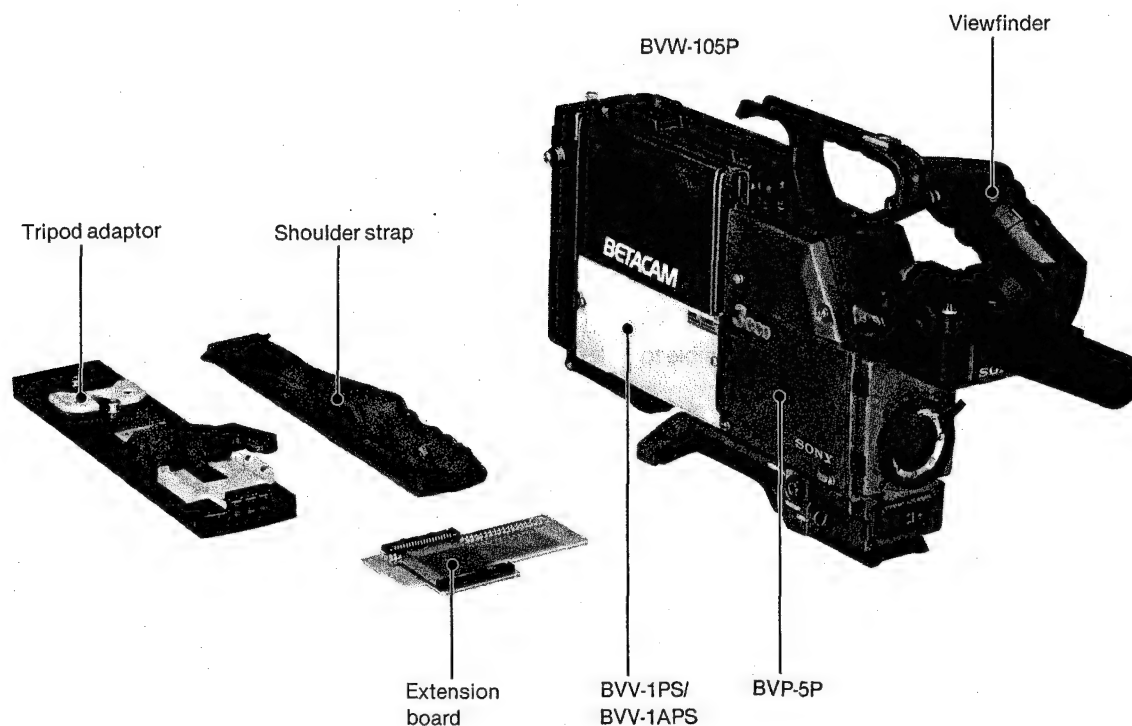
#### Note

When the BVV-1PS with the serial No. 49999 or less is used, the following functions of the BVW-105P do not work.

- The audio level indicator in the viewfinder
- The recording level control of audio channel 1

\* "Dolby" and the double-D symbol are trade marks of the Dolby Laboratories Licensing Corporation. Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.

## 1-14-2. Components of the BVW-105P



Carrying case\*  
 L-shaped wrench (3 mm dia.)  
 L-shaped wrench (2.5 mm dia.)  
 Screws  
 Rain-proof cover  
 Cover for screw holes  
 Battery compartment lid strap  
 Extractor  
 50-pin caps  
 Time code cable

\* The carrying case is supplied to the Betacam system BVW-105P. When a BVV-1PS/BVV-1APS VTR and a BVP-5P camera are obtained separately, they will not be supplied. To obtain them, please consult your Sony personnel.

### 1-14-3. Check Routines

Before operation, we recommend to perform the following check and confirm that the Betacam system works correctly. In this case, use a color monitor to check the picture.

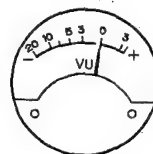
#### 1. Preparation

1. Insert a fully-charged battery pack.

2. POWER switch → ON

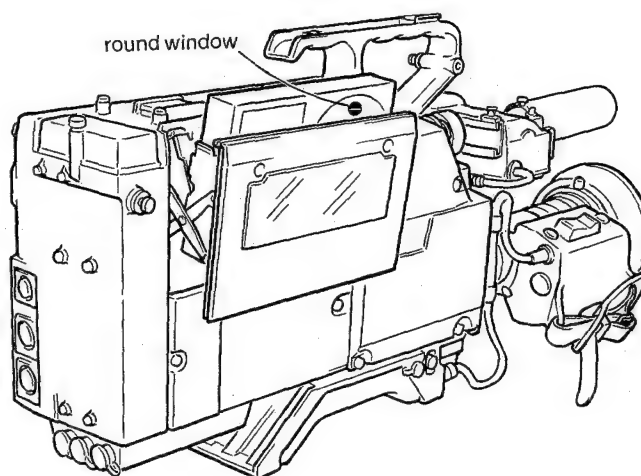
3. Check that the HUMID lamp does not light.

4. Check the battery.  
Set the METER SELECT switch to BATT and check that the meter pointer deflects into the green zone.



5. Set the time code or the user bit, if necessary.

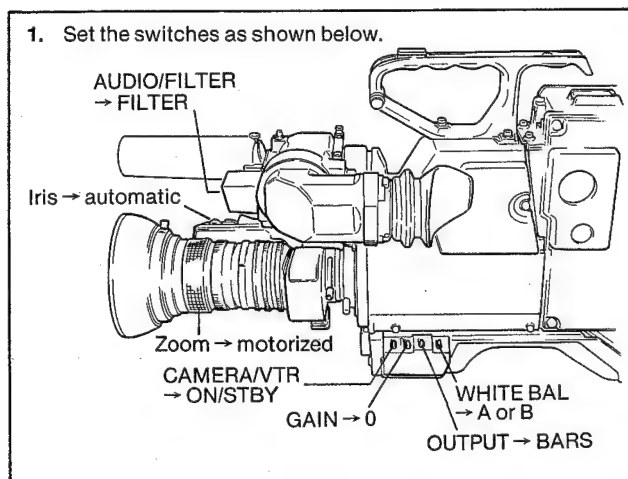
6. Insert a cassette tape.



• Check that the safety tab on the bottom of the cassette is in place.



## 2. Check the camera



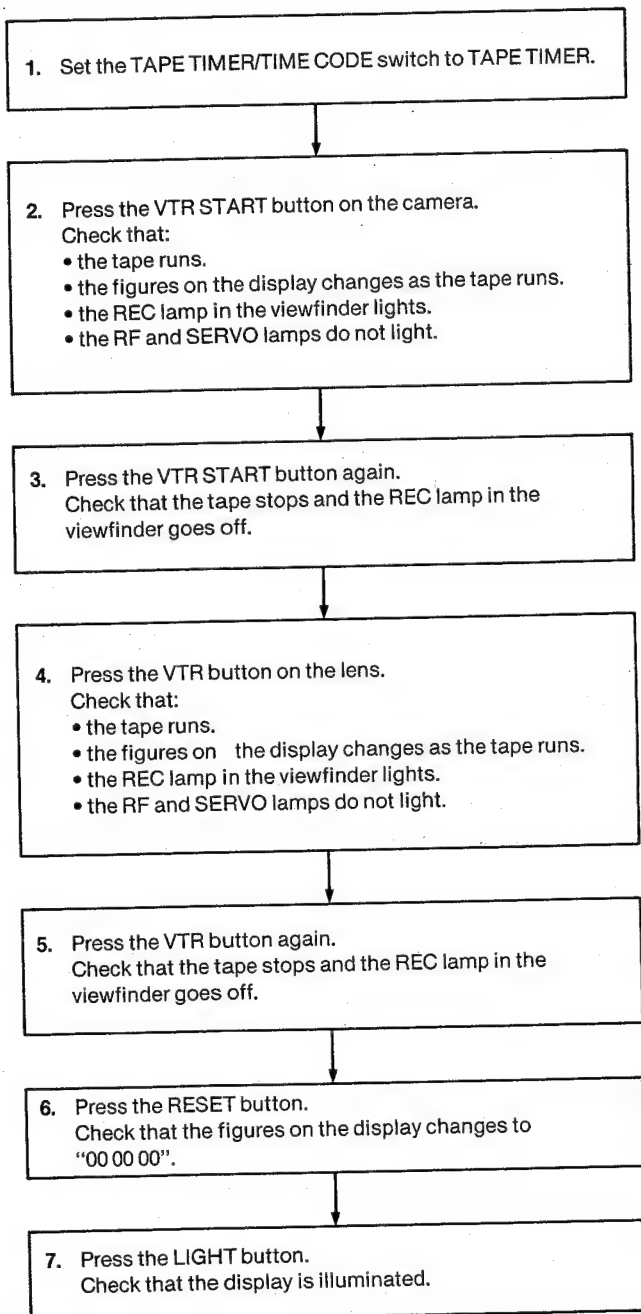
2. Adjust the position of the viewfinder.
3. Check that the color bars appear on the viewfinder.
4. Set the OUTPUT (DCC) selector to BARS, and set the AUTO W/B BAL switch to WHT to select the character display mode.
5. Turn the BRIGHT control and CONTR control on the viewfinder so that the color bars on the viewfinder screen can be seen clearly.
6. Turn the FILTER selector 1 → 2 → 3 → 4 and check that the filter indicator in the viewfinder lights in turn according to the position of the FILTER selector.
7. Set the OUTPUT (DCC) selector to CAM.
8. Point the camera to the appropriate subject.

9. Turn the focus ring so that the subject is in the focus. Check that the subject appears on the viewfinder screen.
10. Check the motorized zoom function. With the motorized zoom knob, the picture changes from wide-angle to telephoto and vice versa.
11. Set the zoom in the manual mode.
12. Check the manual zoom function. Turn the manual zoom lever and check that the picture changes from wide-angle to telephoto and vice versa.
13. Set the zoom in the motorized mode.
14. Point the camera at subjects with different brightness and check that the auto iris mechanism functions.
15. Set the iris in the manual mode.
16. Turn the iris ring and check that iris is adjusted.
17. Press and hold down the instant auto button to temporarily switch to automatic iris adjustment. Point the camera at subjects under different brightness levels to check the adjustment.
18. Set the iris in the automatic mode.
19. Set the GAIN selector to 9 and to 18. Check that the iris closes and that the GAIN UP indicator in the viewfinder lights.
20. Set the GAIN selector to 0.
21. Set the AUDIO/FILTER switch to AUDIO. Check that the FILTER/AUDIO indicator shows the audio level.

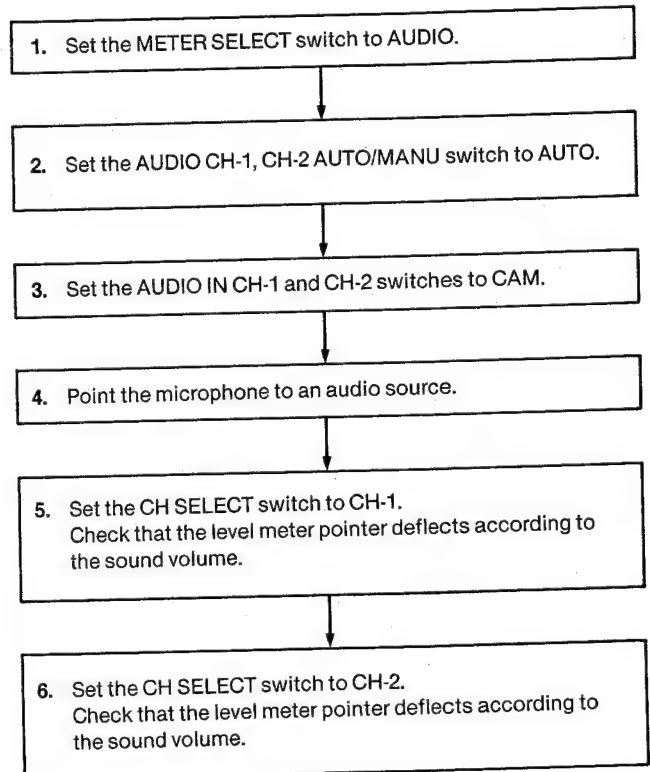
### 3. Check the VTR

Perform the 3-1. through the 3-5. continuously.

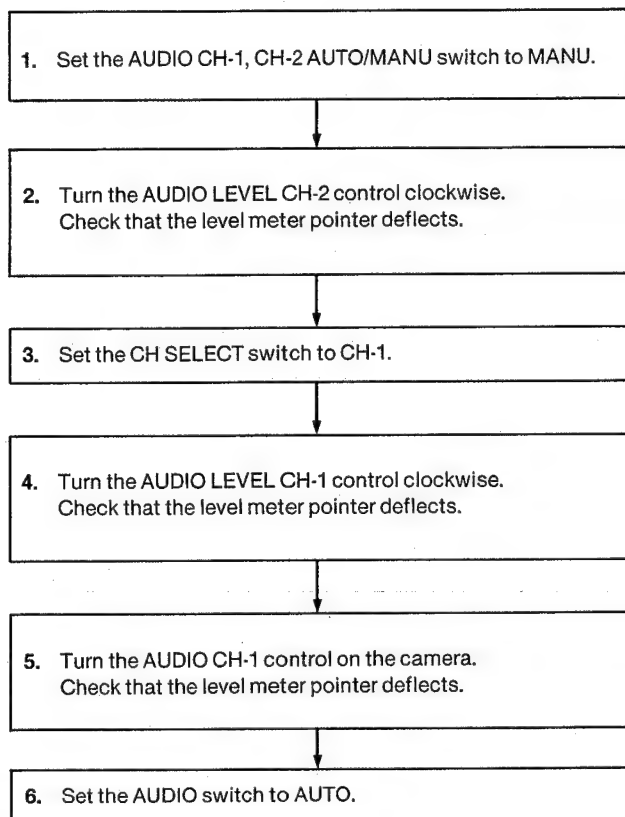
#### 3-1. Check the tape transport



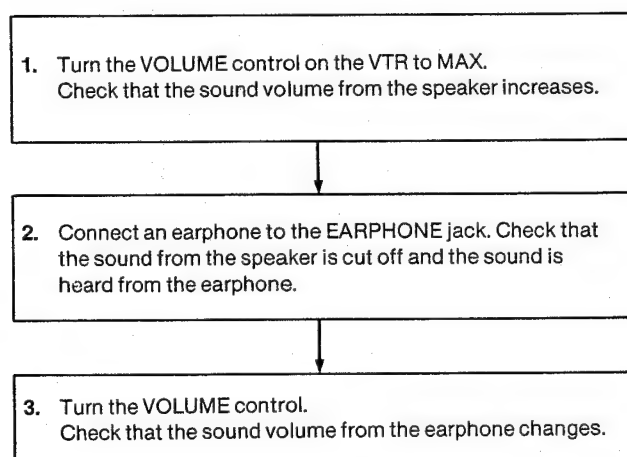
#### 3-2. Check the automatic audio recording level adjustment



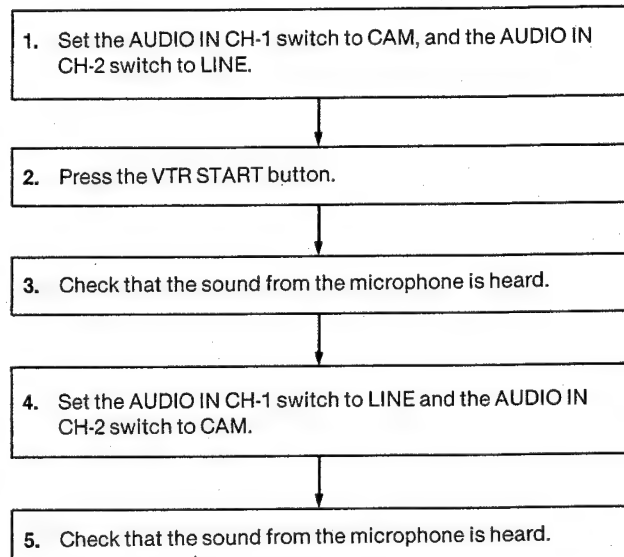
### 3-3. Check the manual audio recording level adjustment



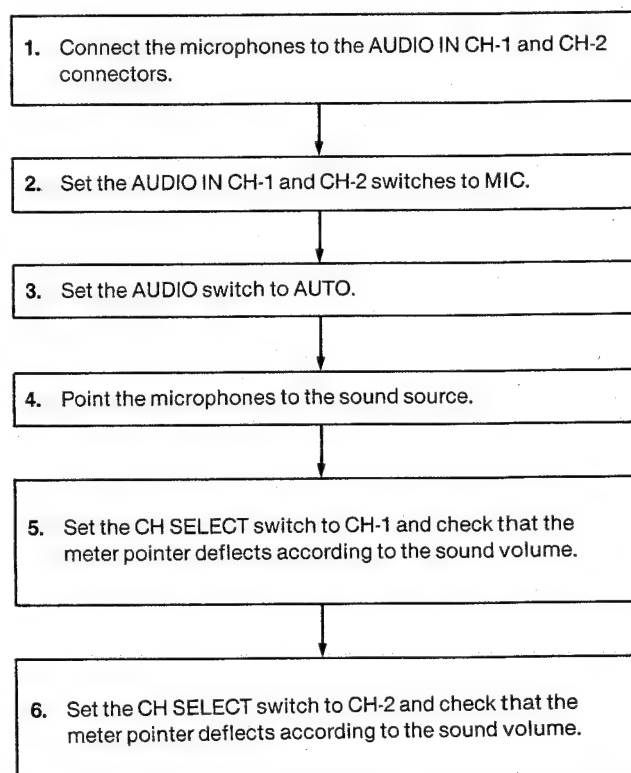
### 3-4. Check the earphone and speaker



### 3-5. Check the audio confidence function



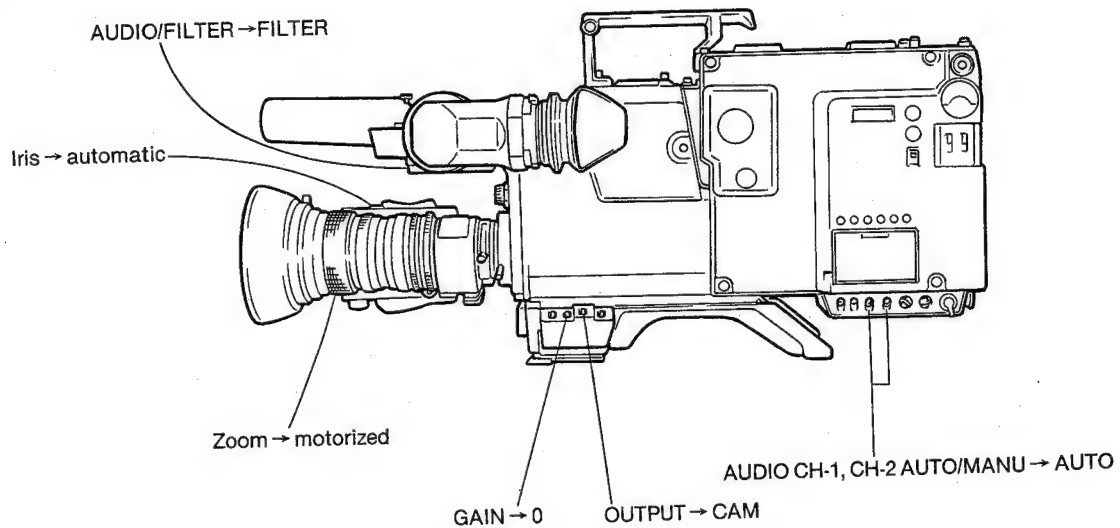
### 3-6. Check the external microphones



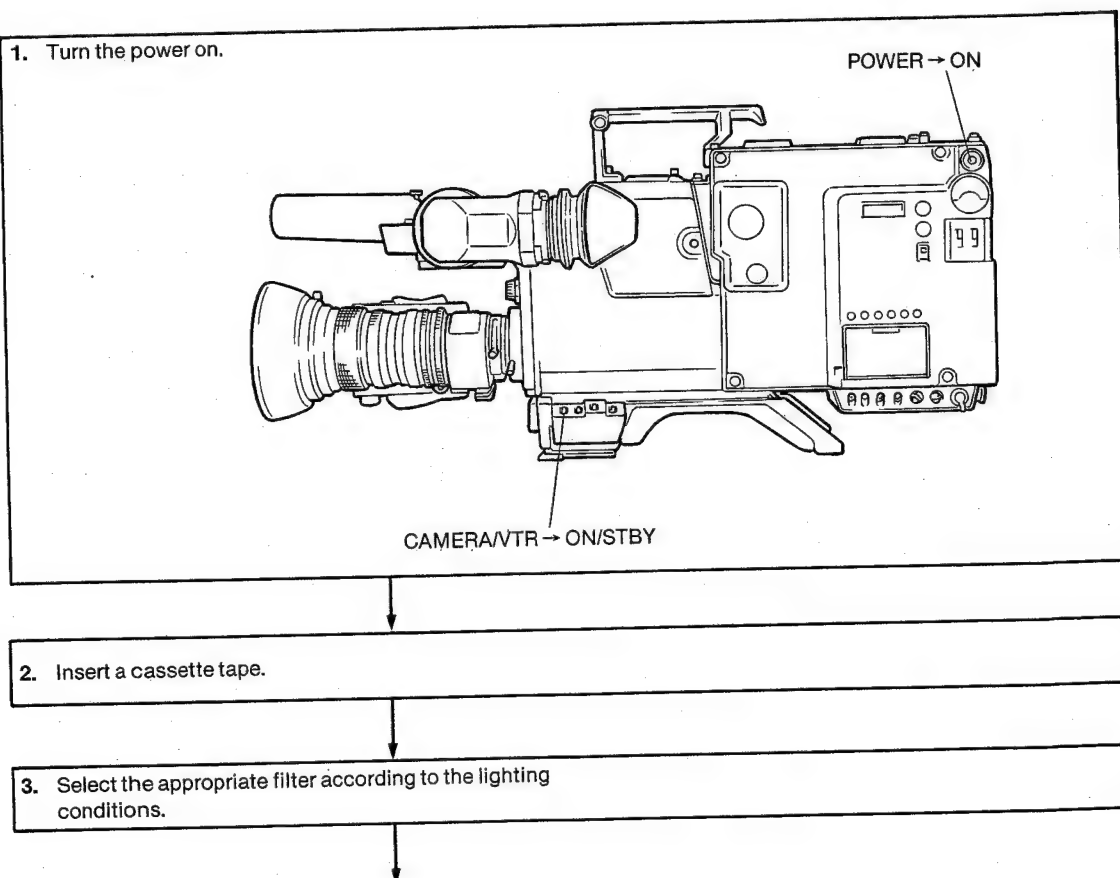
## 1-14-4. Operation

### 1. Preparation

Before starting operation, check that the switches are set correctly as shown below.



### 2. Recording



4. Adjust the white balance and the black balance.  
**When the white balance and the black balance value has been memorized**

Set the WHITE BAL switch to A or B.

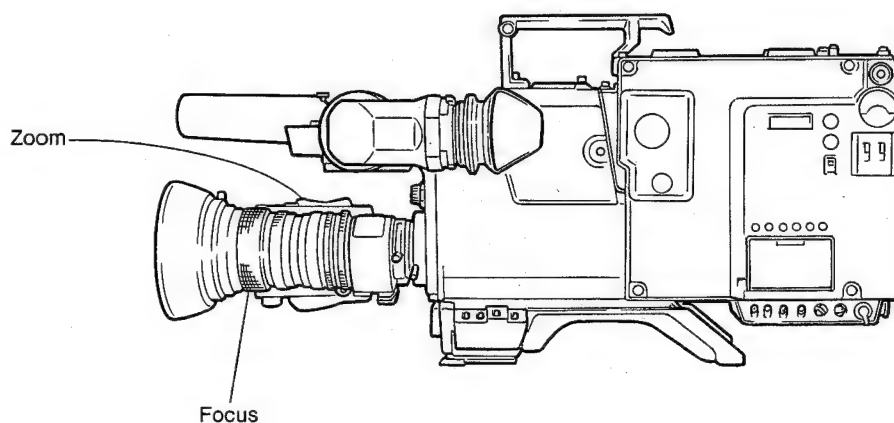
**When the white balance value is not memorized but you want to start recording quickly**

Set the WHITE BAL switch to PRESET and set the AUTO W/B BAL switch to BLK. The white balance and the black balance at about 3200°K is obtained.

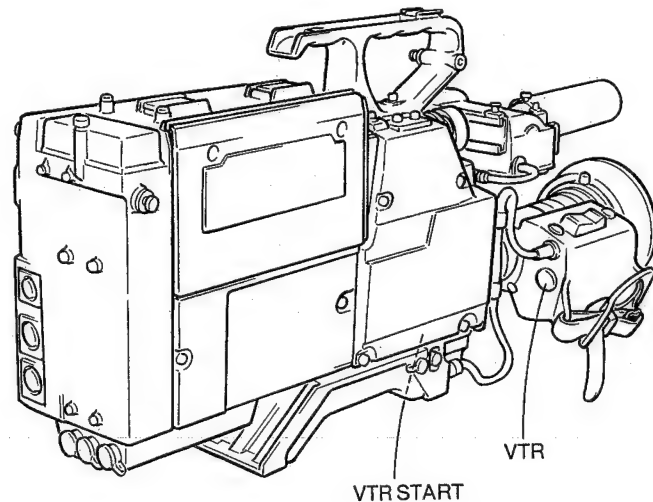
**To adjust the white balance and the black balance**

- 1) Set the WHITE BAL switch to A or B.
  - 2) Zoom up the white subject.
  - 3) Set the AUTO W/B BAL switch to BLK. When the W/B CENT indicator lights and "BLACK: OK" is displayed, the black balance is adjusted.
  - 4) Set the AUTO W/B BAL switch to WHT and check that the W/B CENT indicator lights and "WHITE: OK" is displayed.
- For details on the white balance and black balance adjustments, see "1-6. Adjustments".

5. Point the camera to the subject and adjust the focus and zoom.



6. Zum Starten der Aufnahme die VTR START-Taste am Objektiv oder die VTR-Taste an der Kamera drücken.



Während der Aufnahme leuchtet die REC-Anzeige im Sucher.

7. Zum Stoppen der Aufnahme die VTR START- oder VTR-Taste erneut drücken. Der Videorecorder schaltet dann auf Bereitschaft, und die REC-Anzeige erlischt.

### Manuelle AudiopegelEinstellung

Der Audiopegel kann wie im folgenden erläutert, manuell eingestellt werden. Bei Verwendung eines BVV-1PS mit einer Serien-Nr. von 50001 und höher oder einem BVV-1APS kann der Pegel von Kanal 1 sowohl am Videorecorder als auch an der Kamera eingestellt werden.

- 1 Stellen Sie die AUDIO IN-Schalter für beide Kanäle wie folgt ein:  
Bei Verwendung des eingebauten Mikrofons → CAM  
Bei Verwendung eines Außenmikrofons → MIC  
Zum Aufnehmen eines extern zugeleiteten Signals → LINE
- 2 Stellen Sie die AUDIO CH-1, CH-2 AUTO/MANU-Schalter auf MANU.
- 3 Stellen Sie den Pegel von Kanal 1 wie folgt ein:
  - 1) Drehen Sie den AUDIO LEVEL CH-1-Regler am Videorecorder ganz nach rechts.
  - 2) Stellen Sie den AUDIO/FILTER-Schalter der Kamera auf AUDIO.
  - 3) Justieren Sie den AUDIO CH-1-Regler der Kamera so ein, daß normalerweise 1 bis 4 Segmente der FILTER/AUDIO-Anzeige leuchten und das rote Segment nur kurzzeitig bei den Spitzenpegeln leuchtet.
    - Die maximal mit dem AUDIO CH-1-Regler der Kamera erreichbare Dämpfung liegt bei ca. 20 dB. Falls dies nicht ausreicht, justieren Sie den Pegel am AUDIO LEVEL CH-1-Regler des Videorecorders ein.
    - Die Segmente der FILTER/AUDIO-Anzeige im Sucher zeigen den Spitzenpegel wie folgt an:

FILTER/AUDIO-Anzeige	1	2	3	4	
Pegelmeter (VU)	-6	-4	0	+3	+6

- 4 Stellen Sie den Pegel von Kanal 2 am AUDIO LEVEL CH-2-Regler des Videorecorders so ein, daß das Pegelmeter bei maximalem Eingangspegel 0 VU anzeigt.

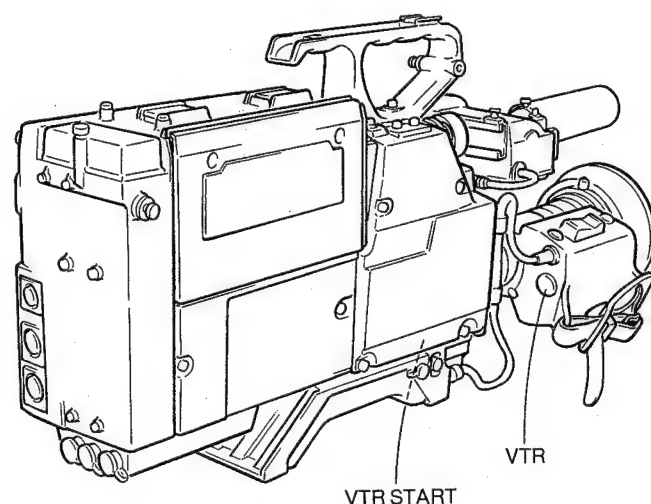
1-14-5. Warnsystem

Anzeigen im Sucher und am Videorecorder sowie akustische Signale über Lautsprecher bzw. Ohrhörer machen das Bedienpersonal auf folgende Betriebszustände aufmerksam:

Ursache	Anzeigen im Sucher			Anzeigen am Videorecorder						Warnton	Videorecorderbetrieb und Korrektur
	REC	TAPE 5M	BATT	RF	SERVO	HUMID	SLACK	TAPE END	BATTERY		
Bandende fast erreicht										W W	Aufnahme geht weiter.
Bandende										WWWW	Aufnahme stoppt; Cassette austauschen.
Batterie fast leer										W W	Aufnahme geht weiter.
Batterie leer										WWWW	Aufnahme stoppt; Batterie austauschen.
Fehler im Aufnahmesystem										W W W	Aufnahme geht weiter; es kann jedoch zu Betriebsstörungen kommen. Die Köpfe müssen gereinigt werden. (Siehe dazu Bedienungsanleitung des BVV-1PS/BVV-1APS.)
Abnormalität im Servosystem										W W W	Schalten Sie das System aus und wenden Sie sich an Ihren Sony Händler. Ein kurzes Aufleuchten der Anzeige beim Anlaufen des Bandes ist normal und stellt kein Problem dar.
Kondensation										W W W	Aufnahme geht weiter, solange das Band nicht an der Kopftrommel haftet. Wenn dieser Fall eintritt, stoppt die Aufnahme, und das Band wird entladen.
zu geringer Bandzug										WWWW	Die Aufnahme stoppt. Der POWER-Schalter und die EJECT-Taste arbeiten nicht mehr. Nehmen Sie die Cassette manuell entsprechend Teil 2 der Anleitung des BVV-1PS/BVV-1APS heraus.

Bedeutung der Symbole			
Anzeigen		Warnton	
	: Blinkt mit 1 Hz	W W	: 1-kHz-Ton, 1-Sekunden-Intervall
	: Blinkt mit 4 Hz	W W W	: 1-kHz-Ton, 1/4-Sekunden-Intervall
	: Leuchtet auf	WWWW	: Dauerton

6. Press the VTR START button on the lens or the VTR button on the camera and the recording begins.



The REC lamp in the viewfinder lights during recording.

7. To stop recording, press the VTR START or VTR button again.  
The VTR is in the standby mode and the REC lamp goes off.

#### Manual audio recording level adjustment

The audio recording level can be adjusted manually with the method as shown below. When the BVV-1PS with the serial No. 50001 and higher or the BVV-1APS is used, the audio channel-1 can be adjusted both on the VTR and on the camera.

- 1 Set the AUDIO IN switches for both audio channels as follows:  
When the built-in microphone is used → CAM  
When an external microphone is used → MIC  
When a line input signal is recorded → LINE
- 2 Set the AUDIO CH-1, CH-2 AUTO/MANU switches to MANU.
- 3 Adjust the level of channel 1 as follows.
  - 1) Turn the AUDIO LEVEL CH-1 control on the VTR fully clockwise.
  - 2) Set the AUDIO/FILTER switch on the camera to AUDIO.
  - 3) Turn the AUDIO CH-1 control on the camera so that the 1 through 4 lamps of the FILTER/AUDIO indicator is usually lit and the red indicator is momentarily lit at the maximum input.
    - The maximum attenuation of the AUDIO CH-1 control on the camera is approximately 20 dB. If an appropriate level cannot be obtained within this range, adjust the level by using the AUDIO LEVEL CH-1 control on the VTR.
    - The FILTER/AUDIO indicator in the viewfinder shows the following level responding to the peak signal.

FILTER/AUDIO indicator

1	2	3	4	
-6	-4	0	+3	+6

Level meter indication (VU)

- 4 The level of the channel 2 is adjusted by the AUDIO LEVEL CH-2 control on the VTR so that the point of the level meter deflects to 0 VU at the maximum input.



1-14-5. Warning System

The indicators and lamps in the viewfinder, the warning lamps on the VTR and the alarm from the speaker or the earphone serve to advise the operator of the following operational states.

Cause	Lamps in viewfinder			Lamps on VTR						Alarm sound	VTR Operation and Correction
	REC	TAPE 5M	BATT	RF	SERVO	HUMID	SLACK	TAPE END	BATTERY		
Tape nearly at its end											Recording continues.
End of tape											Recording stops. Change cassettes.
Battery near end											Recording continues.
Battery end											Recording stops. Change batteries.
Something wrong in the recording system											Recording continues but may not be performed correctly. Head-cleaning is required. (For details on head-cleaning, see the instruction manual of the BVV-1PS/BVV-1APS.)
Irregularity in servo											Recording continues but may not be performed correctly. Turn off the power and consult your Sony dealer. The lamp may momentarily blink when the tape starts running, but this is not a problem.
Moisture condensation											Recording continues as long as the tape does not stick to the head drum. If this happens, recording will stop and the tape will be unthreaded.
Slack tape											Recording stops. The POWER switch and the EJECT button do not function. Remove the cassette manually referring to the section 2 of the BVV-1PS/BVV-1APS's instruction manual.

Marks .

Lamps



: Blinks in 1 Hz



: Blinks in 4 Hz



: Lights up

Sound of alarm



: In 1 kHz, 1 second interval



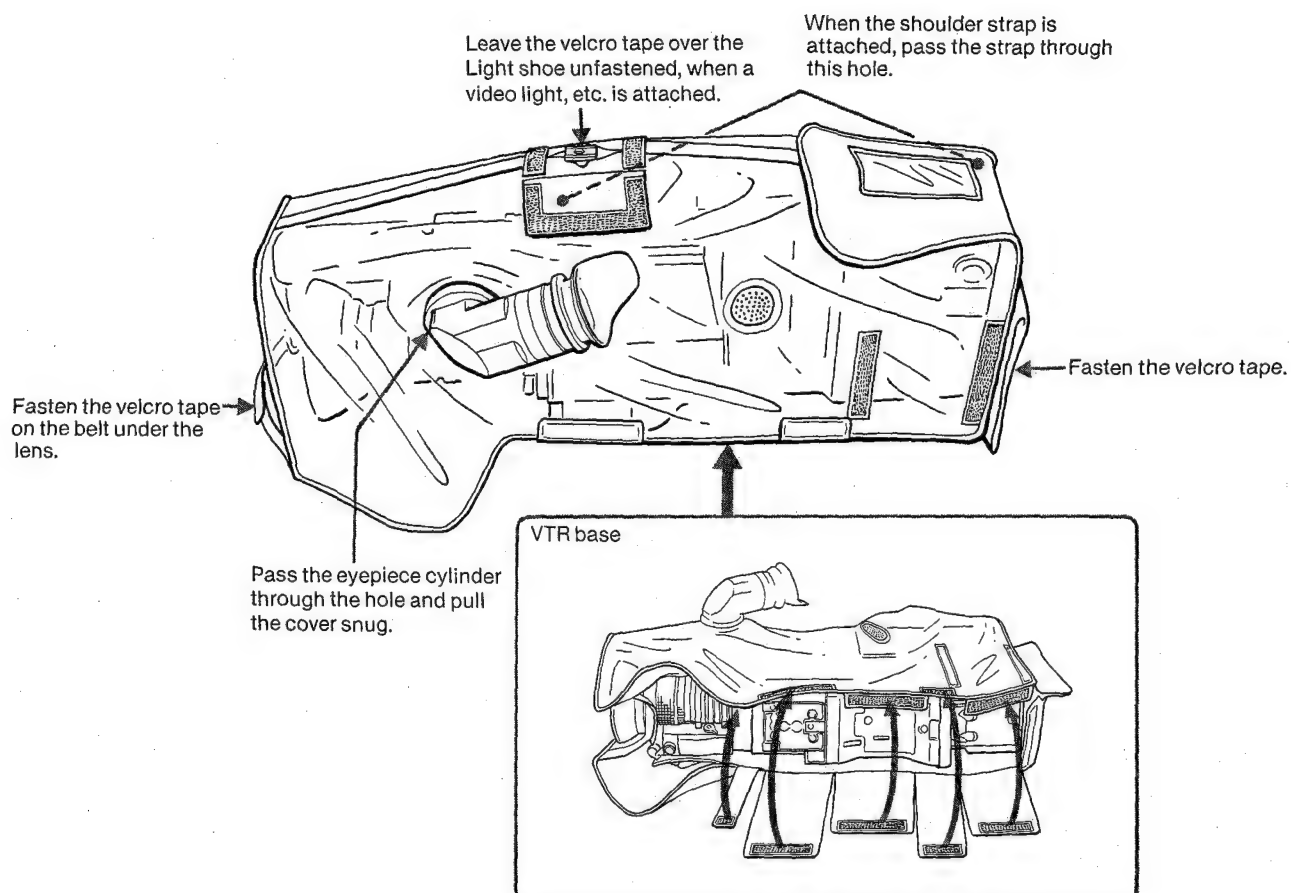
: In 1 kHz, 1/4 second interval



: Continuous sound

## 1-14-6. Putting on the Rain Cover

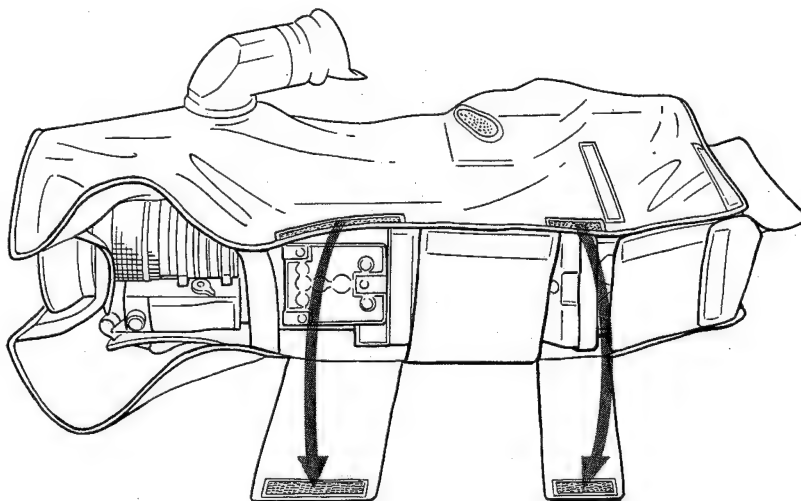
To cover the Betacam system BVW-105P



1. OPERATION

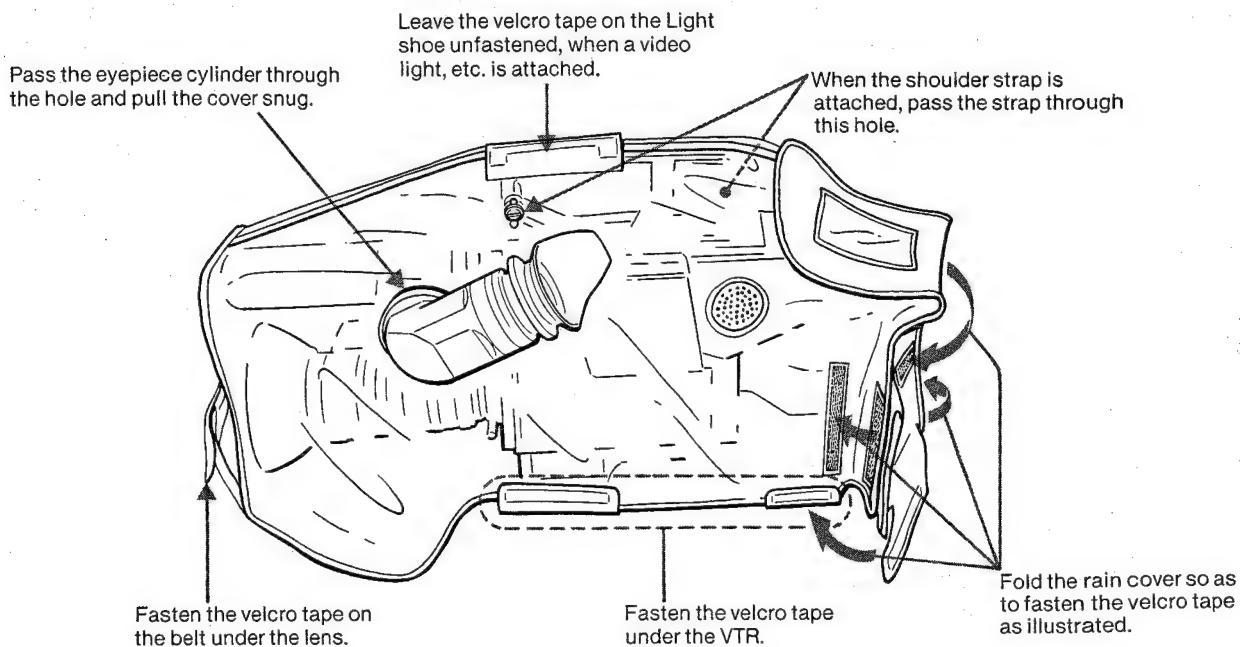
### Attaching the covered Betacam system BVW-105P to the tripod adaptor

Leave the velcro tape under the VTR unfastened as illustrated.



After attaching to the tripod adaptor, fasten the velcro tape over it.

### To cover the BVP-5P with the Camera adaptor CA-3 attached



# TEIL 1 BETRIEB

Die BVP-5P ist eine kompakte und leichte, mit einem 3-Chip CCD-Bildwandler (Charge Coupled Device) ausgestattete Farb-Videokamera. Bei Zusammenschaltung der BVP-5P mit dem portablen Videorecorder BVV-1PS/BVV-1APS erhält man das Betacam-System BVW-105P, das sich besonders für elektronische Berichterstattung eignet und zu dessen Bedienung nur eine Person erforderlich ist. Bei Verwendung mit dem Kameraadapter CA-3 (Sonderzubehör) kann die BVP-5P auch portabel eingesetzt werden.

## 1-1. ÜBERBLICK

### CCD-Bildwandler

Dank dem CCD-Bildwandler konnte die Kamera kompakt und leicht ausgelegt werden und weist einen geringeren Stromverbrauch als eine Kamera mit herkömmlichen Aufnahmehöhlen auf. Neben einer langen Lebensdauer zeichnet sich ein CCD-Bildwandler noch durch folgende Vorteile aus:

- Praktisch keine Nachzieheffekte, keine Einbrenngefahr und keine geometrischen Verzerrungen.
- Unempfindlichkeit gegenüber Vibrationen und Stößen.
- Keine Beeinflussung durch das Erdmagnetfeld.
- Dank hohem Signal-Rauschabstand kann der Videoausgangspegel um 9 dB oder 18 dB angehoben werden, so daß man auch bei schwacher Beleuchtung noch klare Aufnahmen erhält.
- Eine Farbdeckungseinstellung ist nicht erforderlich.

### Kompakt und leicht

Dank einem Gehäuse aus Magnesiumguß ist diese kompakte, benutzerfreundliche Kamera nicht nur sehr leicht, sondern auch robust.

### Hohe Empfindlichkeit

Der Videoausgangspegel kann um 9 dB oder 18 dB angehoben werden. Selbst in der 18-dB-Position kann noch mit hochqualitativen Aufnahmeresultaten gerechnet werden.

### Automatischer Weiß/Schwarzabgleich und fester Weißabgleichwert

Der Weiß- und Schwarzabgleich kann automatisch für jede Filterposition ausgeführt und in den nicht flüchtigen Memories A und B abgespeichert werden. Da die Memories A und B getrennte Werte aufnehmen können, lassen sich insgesamt 8 Abgleichwerte speichern. In der Stellung PRESET des WHITE BAL-Schalters erhält man einen festen Weißabgleich auf die Farbtemperatur 3200°K.

### Warnsystem

Warnanzeigen im Sucher weisen auf Störungen des Videorecorders, auf das Bandende und eine erschöpfte Akkubatterie hin. Wird die BVP-5P zusammen mit dem BVV-1PS/BVV-1APS verwendet, so erhält man zusätzlich einen akustischen Warnton und im Sucher wird die restliche Bandzeit angezeigt.

### Zeicheneinblendung

Die Einstellung der Bedienungselemente, die Schritte und Zustände der automatischen Einstellung sowie die Schritte des Selbsttestes können in den Sucherschirm eingeblendet werden.

### Automatischer Objektiv-Schließmechanismus

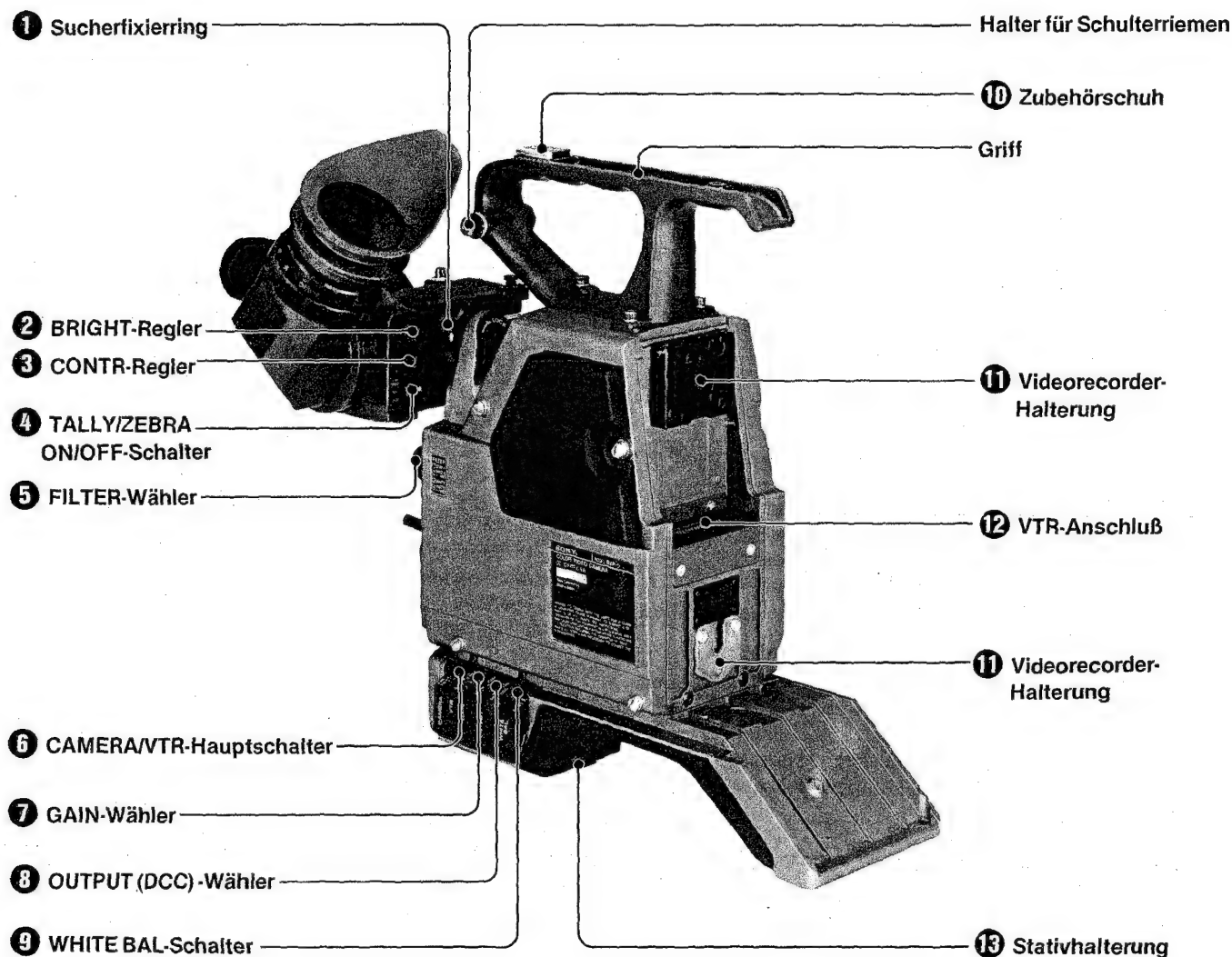
In folgenden Fällen wird das Objektiv automatisch geschlossen:

- Der CAMERA/VTR-Ein/Aus-Schalter steht auf PREHEAT.
- Der OUTPUT (DCC)-Wähler steht auf BARS.
- Der automatische Schwarzabgleich wird momentan ausgeführt.
- Das Testsignal wird ausgegeben.

### Außerdem weist die BVP-5P noch folgende Vorzüge auf:

- Geringe Stromaufnahme.
- Dank einem DCC-Schaltkreis (Dynamic Contrast Control) kann die Kamera bis zum Fünffachen der normalen Lichtstärke verarbeiten.
- Gen-Lock-Funktion bei Verwendung des Kameraadapters CA-3.
- Zeitcode-Verriegelung bei Verwendung des BVV-1APS.
- Zweizeiliger Bild-Enhancer.
- Schatten-Kompensationsschaltkreis ermöglicht die Verwendung von Konverter-Objektiven.
- Hohe Farbauflösung dank einem Detail-Schaltkreis, der die R- und B-Signale mischt.
- Test-Sägezahngenerator
- Maskierungs-Schaltkreis
- Mikrophon mit ausgeprägter Richtwirkung
- Automatikblende
- Videopegelanzeige
- Einstellmöglichkeit des Pegels von Audiokanal 1
- Ein/Aus-Schalter für Zebrawuster
- Anschlußmöglichkeit für Außenmikrophon
- Sucher mit hoher Auflösung
- Verstellbarer Sucher, der sowohl am rechten als auch am linken Auge verwendet werden kann.

## 1-2. LAGE UND FUNKTION DER TEILE UND BEDIENUNGSELEMENTE



### 1 Sucherfixierring

Zum Positionieren des Suchers lösen Sie diesen Ring, verschieben Sie den Sucher nach rechts oder links und drehen Sie den Ring dann wieder fest.

### 2 Helligkeitsregler (BRIGHT)

Zur Einstellung der Helligkeit des Sucherbildes. Durch Drehen nach rechts wird das Bild heller. Dieser Regler hat keinen Einfluß auf das Kamera-Ausgangssignal.

### 3 Kontrastregler (CONTR)

Zur Kontrasteinstellung des Sucherbildes. Dieser Regler hat keinen Einfluß auf das Kamera-Ausgangssignal.

### 4 Ein/Aus-Schalter für Signallampe und Zebmuster (TALLY/ZEBRA ON/OFF)

**ZEBRA/TALLY:** Zebmuster und Signallampe sind eingeschaltet.

**OFF:** Zebmuster und Signallampe sind ausgeschaltet.

**ZEBRA:** Das Zebmuster ist ein- und die Signallampe ist ausgeschaltet.

## 5 Filterwähler (FILTER)

Wählen Sie hier einen Filter entsprechend den Beleuchtungsverhältnissen.

Filternummer	Farbtemperatur	Lichtverhältnisse
1	3200°K	Sonnenaufgang, -untergang, im Studio
2	5600°K + 1/4ND*	In Freien bei gutem Wetter
3	5600°K	Bei Bewölkung oder Regen
4	5600°K + 1/16ND*	Schneelandschaft bei klarem Wetter, im Gebirge oder am Meer

\*ND: Graufilter

## 6 Kamera/Videorecorder-Hauptschalter (CAMERA/VTR)

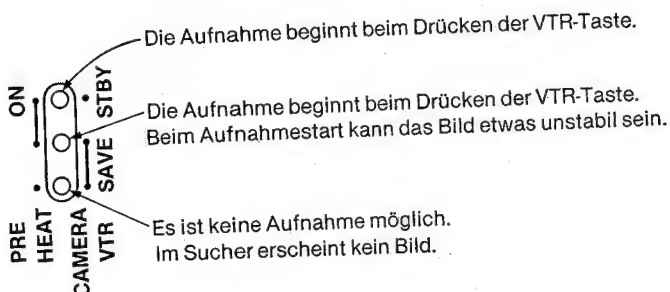
An diesem Schalter können die Kamera und der Videorecorder in folgende Betriebszustände geschaltet werden.

**CAMERA-PREHEAT:** Die Sucherbildröhre wird vorgeheizt. Das Bild erscheint jedoch noch nicht, so daß Energie gespart wird.

**CAMERA-ON:** Alle Komponenten der Kamera werden mit Strom versorgt, und das Bild erscheint im Sucher.

**VTR-SAVE:** Die Kopftrommel bleibt stehen, und das Band wird ausgefädelt. Hierdurch wird Energie gespart, so daß mit einer Akkuladung eine längere Aufnahmezeit möglich ist.

**VTR-STBY:** Die Kopftrommel läuft los und das Band wird um die Kopftrommel geschlagen.



## 7 Verstärkungswähler (GAIN)

Bei Normalbedingungen sollte dieser Wähler auf „0“ stehen.

In den Positionen „9“ und „18“ wird der Video-Ausgangspegel um 9 dB bzw. 18 dB angehoben. Durch eine interne Schalterumstellung kann der Ausgangspegel in der 18-dB-Position auch um 24 dB angehoben werden. Genaueres dazu entnehmen Sie bitte Teil 2ff.

## 8 Ausgangs/Kontrastautomatik-Wähler (OUTPUT (DCC))

Zur Wahl des zur VTR-Buchse 12, TEST OUT-Buchse 17 und zum Sucher geleiteten Signals.

**CAM:** Für das von der Kamera aufgenommene Signal. In der Stellung DCC ON arbeitet der eingebaute DCC-Schaltkreis (Dynamic Contrast Control). Ist keine Kontrastautomatik erwünscht, stellen Sie den Wähler auf DCC OFF.

**BARS (DCC OFF):** Für das Farbbalkensignal, das entweder zur Einstellung des Videomonitors verwendet oder auf Band aufgezeichnet werden kann. Wird die BVP-5P zusammen mit dem BVV-1PS/BVV-1APS verwendet, so erscheinen die I-, Q-Signale nicht auf dem Bildschirm. Verwenden Sie diese Position zum Ändern des Zeichenanzeigebetriebs.

## 9 Weißabgleichschalter (WHITE BAL)

**PRESET:** Für werkseitig auf ca. 3200°K voreingestellten Weißabgleichwert (Jodlampe), wenn der FILTER-Wähler 5 auf 1 steht. Verwenden Sie diese Position, wenn keine Zeit für einen exakten Weißabgleich verbleibt.

**A, B:** Bei auf WHT gestelltem AUTO W/B BAL-Schalter 26 kann hier gewählt werden, ob der automatisch eingestellte Weißabgleichwert im Memory A oder B abgespeichert wird. Beim Abrufen stellen Sie den Schalter auf A oder B, je nachdem welcher Speicherwert gewünscht ist.

## 10 Zubehörschuh

Zum Aufstecken einer Videoleuchte usw.

## 11 Videorecorder-Halterung

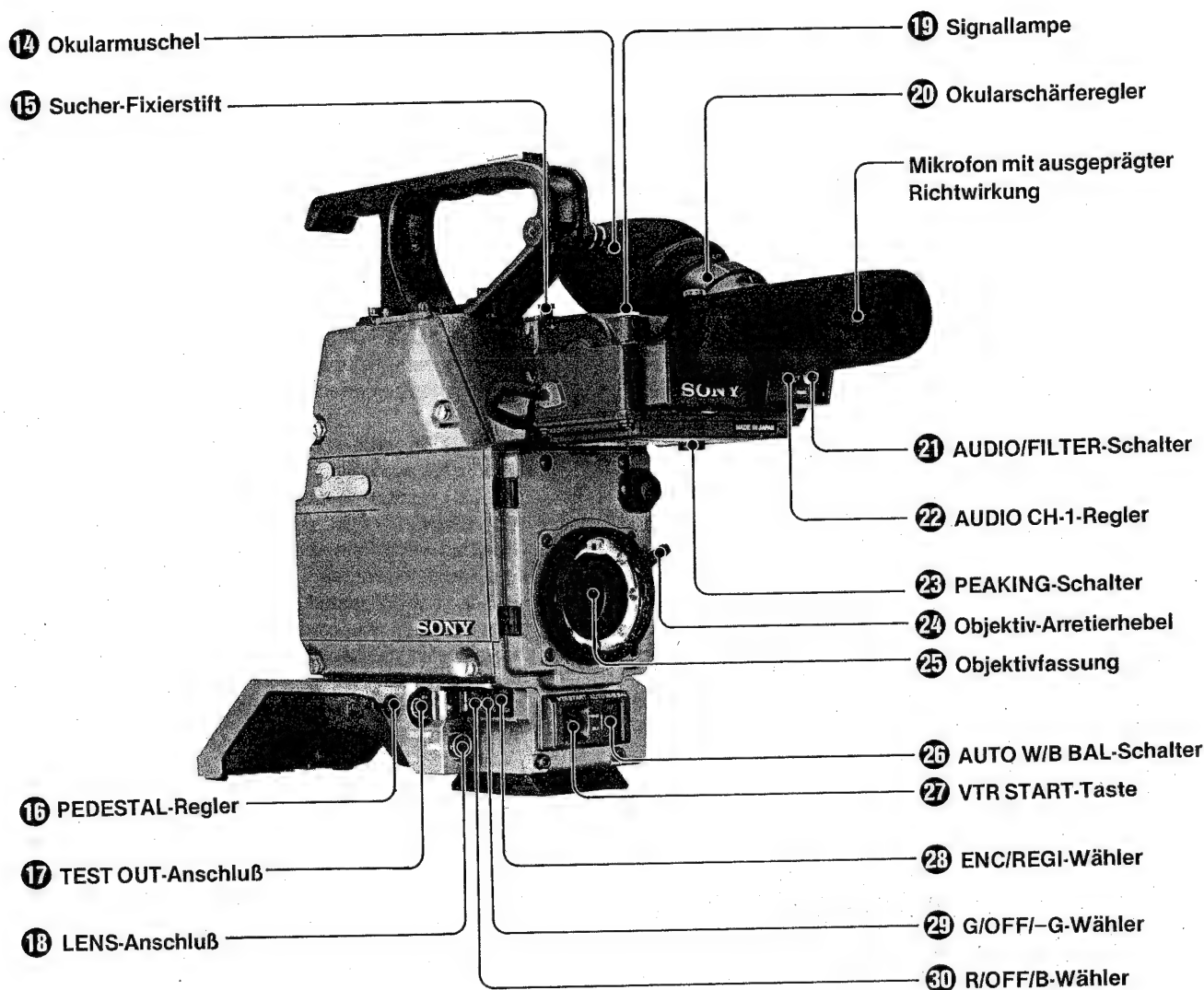
Zum Befestigen des portablen Videorecorders BVV-1PS/BVV-1APS, des Kameraadapters CA-3 usw.

## 12 Videorecorder-Anschluß (VTR) (50 pol)

Verbinden Sie diesen Anschluß mit dem 50 pol- Anschluß des Videorecorders BVV-1PS/BVV-1APS, des Kameraadapters CA-3 usw.

## 13 Stativhalterung

Zum Befestigen der Kamera auf einem Stativ kann hier der mitgelieferte Stativadapter angebracht werden.



- 14 Okularmuschel**  
Die Okularmuschel ist abnehmbar, um direkt auf den Sucherschirm blicken zu können.
- 15 Sucher-Fixierstift**  
Zum Abnehmen des Suchers von der Kamera ziehen Sie diesen Stift hoch.
- 16 Schwarzpegelregler (PEDESTAL)**  
Zum Einstellen des Schwarzpegels.
- 17 Testausgang (TEST OUT) (BNC)**  
An dieser Buchse liegt das am ENC/REGI-Wähler **28** gewählte Signal an. Steht dieser Wähler auf ENC (codiertes Videosignal), so muß der Anschluß abgeschlossen werden, da sonst das codierte Signal nicht ausgegeben wird.

- 18 Objektivanschluß (LENS) (12 pol)**  
Zum Anschluß des Objektivkabels.  
Ihr Sony Händler gibt Ihnen gerne genauere Auskunft darüber, welche Objektive verwendet werden können.
- 19 Signallampe**  
Diese Lampe leuchtet bzw. blinkt entsprechend der REC-Lampe im Sucher, wenn der TALLY/ZEBRA ON/OFF-Schalter auf ZEBRA/TALLY gestellt ist.
- 20 Okularschärferegler**  
Dieser Regler dient zum Scharfstellen des Sucherbildes. Der Regler hat keinen Einfluß auf das Ausgangssignal der Kamera.



### 21 AUDIO/FILTER-Schalter\*

**AUDIO:** Zum Einstellen des Aufnahmepegels von Tonkanal 1 am AUDIO CH-1-Regler. Die FILTER/AUDIO-Anzeige im Sucher zeigt den Tonaufnahmepegel an.

**FILTER:** Die FILTER/AUDIO-Anzeige im Sucher zeigt die am FILTER-Wähler eingestellte Filternummer an. Verwenden Sie stets diese Position; außer wenn die Kamera zusammen mit einem BVV-1PS/BVV-1APS der Serien-Nr. 49999 oder niedriger verwendet wird.

### 22 Aufnahmepegelregler für Tonkanal 1 (AUDIO CH-1)

Steht der AUDIO CH-1 MANU/AUTO-Schalter am BVV-1PS/BVV-1APS auf MANU und der AUDIO/FILTER-Schalter 21 auf AUDIO, so kann der Aufnahmepegel von Tonkanal 1 manuell eingestellt werden. Beobachten Sie bei der Einstellung die FILTER/AUDIO-Anzeige im Sucher.

### 23 Konturenanhebungsschalter (PEAKING)

Zur leichteren Schärfeneinstellung können mit diesem Schalter die Bildkonturen angehoben werden. Bei jedem Drücken dieses Schalters wird die Funktion abwechselnd ein- und ausgeschaltet.

### 24 Objektivarretierhebel

Nach dem Einsetzen des Objektivs in die Fassung arretieren Sie das Objektiv mit diesem Hebel.

### 25 Objektivfassung (Spezial-Bajonetttyp)

Zum Anbringen des Objektivs.

### 26 Schalter für automatischen Weiß/Schwarzabgleich (AUTO W/B BAL)

**WHT:** Für automatischen Weißabgleich stellen Sie den WHITE BAL-Schalter auf AUTO und dann diesen Schalter auf WHT.

Der eingestellte Wert wird automatisch gespeichert. Zum Ändern des Zeichenanzeigebetriebs stellen Sie diesen Schalter auf WHT, nachdem zuvor der OUTPUT (DCC)-Wähler auf BARS gestellt wurde. Bei jedem Umstellen auf WHT ändert sich die Betriebsart zyklisch. Beim Überprüfen der BVP-5P mit Hilfe der Selbsttest-Funktion wird beim Umstellen des Schalters auf WHT der nächste Selbsttestschritt ausgeführt.

**BLK:** Für automatischen Schwarzabgleich und Schwarzpegeleinstellung. Der eingestellte Wert wird automatisch gespeichert.

- Sowohl von der Position WHT als auch von BLK kehrt der Schalter selbständig beim Loslassen in die Mittelposition zurück.

### 27 Videorecorder-Starttaste (VTR START)

Zum Starten und Stoppen der Aufnahme. Die Taste hat die gleiche Funktion wie die VTR-Taste am Objektiv. Zur Verwendung der Taste muß die Abdeckung abgenommen werden.

### 28 Kodier/Registrier-Wähler (ENC/REGI)

Zur Wahl des an der TEST OUT-Buchse 17 anliegenden Signals.

**ENC:** Für das codierte Signal (FBAS) der R-, G- und B-Signale.

**REGI:** Für das am R/OFF/B-Wähler 30 und G/OFF/—G-Wähler 29 gewählte Signal (R, G, B, R—G oder B—G).

### 29 G/AUS/—G-Wähler (G/OFF/—G)

Hier wird wie folgt das an der TEST OUT-Buchse anliegende Signal gewählt, wenn der ENC/REGI-Wähler 28 auf REGI steht.

**G:** G- (Grün-) Signal

**OFF:** Das G-Signal ist abgeschaltet.

**—G:** —G- (phaseninvertiertes Grün-) Signal

### 30 R/AUS/B-Wähler (R/OFF/B)

Hier wird wie folgt das an der TEST OUT-Buchse anliegende Signal gewählt, wenn der ENC/REGI-Wähler 28 auf REGI steht.

**R:** R- (Rot-) Signal

**OFF:** R- und B-Signale sind abgeschaltet.

**B:** B- (Blau-) Signal

\* Dieser Schalter und dieser Regler arbeiten nur, wenn die BVP-5P zusammen mit einem BVV-1PS der Serien-Nr. 49999 oder niedriger verwendet wird.



# Anzeigen im Sucher

## Anzeige für verbleibende Aufnahmezeit

Zeigt den zur Aufnahme noch verbleibende Bandvorrat in Minuten an. Die Anzeige arbeitet nur, wenn der BVV-1PS/BVV-1APS direkt über den 50pol Anschluß verbunden ist.

## Aufnahmeanzeige (REC) (rot)

Diese Anzeige leuchtet während der Aufnahme und blinkt, wenn eine der Warnanzeigen am BVV-1PS/BVV-1APS blinkt oder leuchtet. Genauere Informationen entnehmen Sie bitte der Bedienungsanleitung des Videorecorders.

10 M  
TAPE 5 M

REC BATT.

## Batterieanzeige (BATT) (rot)

Sind die Batterien erschöpft, so beginnt diese Anzeige einige Minuten, bevor die Spannung den zum einwandfreien Funktionieren notwendigen Wert unterschreitet, zu blinken. Ist der Wert überschritten, leuchtet die Anzeige konstant auf.

## Anzeige für Weiß/Schwarzabgleich (W/B CENT) (orange)

Leuchtet auf, wenn der automatische Weiß- und Schwarzabgleich beendet ist. Nach 5 Sekunden erlischt die Anzeige. War keine automatische Einstellung möglich, so blinkt die Anzeige ca. 5 Sekunden lang.

FILTER/AUDIO 1 2 3 4 GAIN W/B  
UP CENT

## Verstärkungsanzeige (GAIN UP)

Diese Anzeige leuchtet, wenn der GAIN-Wähler auf 9 oder 18 gestellt ist.



## FILTER/AUDIO-Anzeige

Wenn der AUDIO/FILTER-Schalter auf AUDIO gestellt ist, wird der Audiopegel angezeigt. Steht der Schalter dagegen auf FILTER, wird die am FILTER-Wähler gewählte Filternummer angezeigt.  
(Genaueres entnehmen Sie bitte dem Abschnitt „Manuelle Audiopegeleinstellung“ von Seite 1-36.)

## Bedeutung der Anzeige für verbleibende Aufnahmezeit

Diese Anzeige arbeitet nur, wenn BVP-5P und BVV-1PS/BVV-1APS direkt über die 50 pol Anschlüsse verbunden sind.

Noch zur Verfügung stehende Zeit	20	15	10	5	2	0 (Minuten)
Anzeigen	10M 5M	10M	5M	5M		
REC-Anzeige			REC			

 : Blinkt mit 1 Hz  
 : Blinkt mit 4 Hz

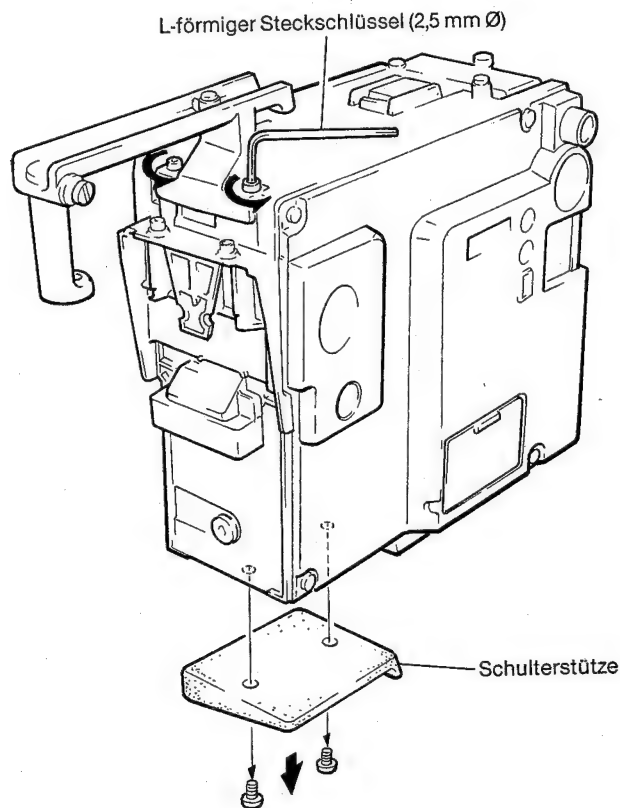
## 1-3. VORBEREITUNG

### 1-3-1. Bei Verwendung mit dem Videorecorder BVV-1PS/BVV-1APS

Im folgenden wird ein Beispiel zur kombinierten Verwendung der BVP-5P mit dem portablen Videorecorder BVV-1PS/BVV-1APS gezeigt. Informationen zur Verwendung der BVP-5P mit anderen Geräten entnehmen Sie bitte der betreffenden Bedienungsanleitung. Hier ist entweder der Griff der BVP-5P oder des Videorecorders zu verwenden. Nehmen Sie zunächst den jeweils nicht verwendeten Griff ab.

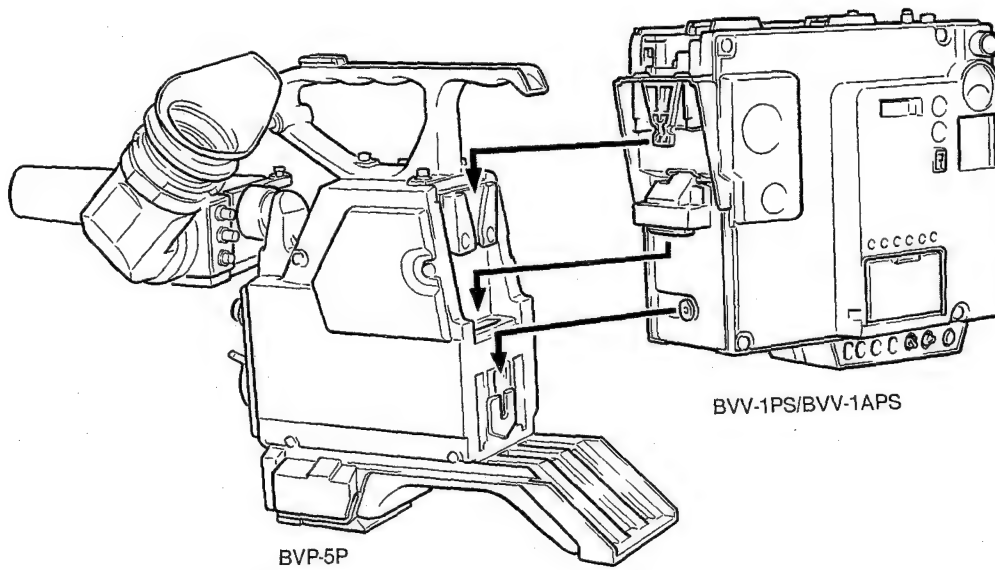
#### Verwendung des BVP-5P-Griffes

- 1 Nehmen Sie den Griff und die Schulterstütze des Videorecorders ab.

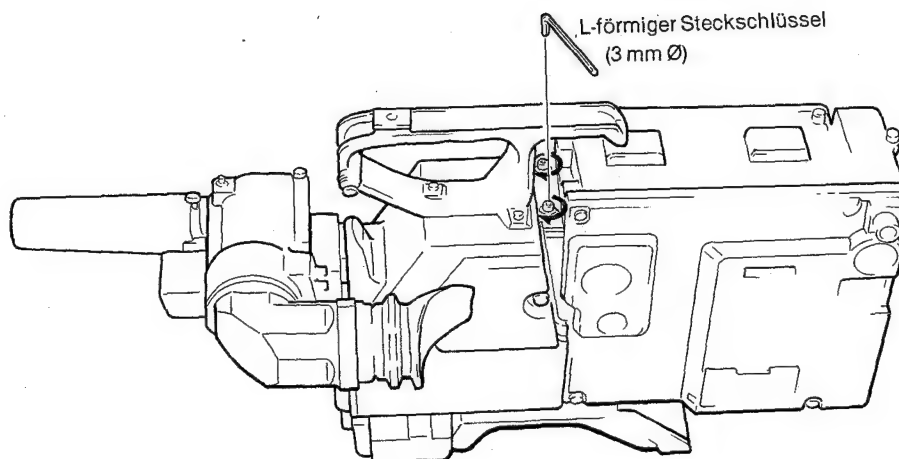


- 2 Setzen Sie die mitgelieferten Schrauben in die Löcher, an denen der Griff befestigt war, ein.

**3** Bringen Sie den Videorecorder an der Kamera an.

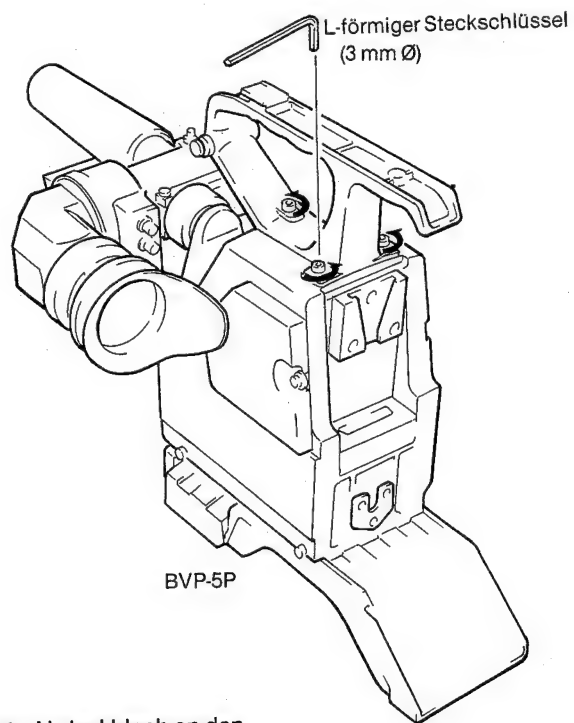


**4** Drehen Sie die Schrauben (beim Videorecorder mitgeliefert) fest.

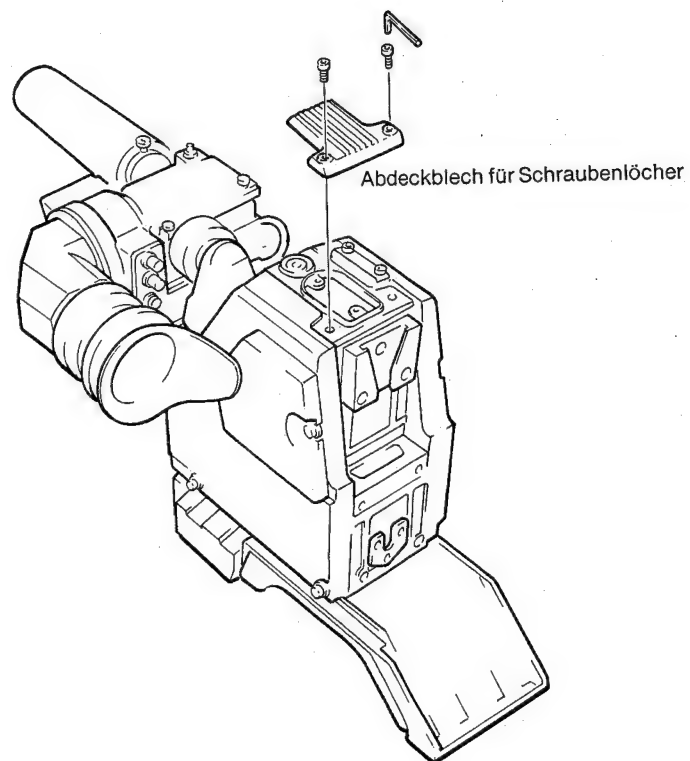


## Verwendung des Videorecordergriffes

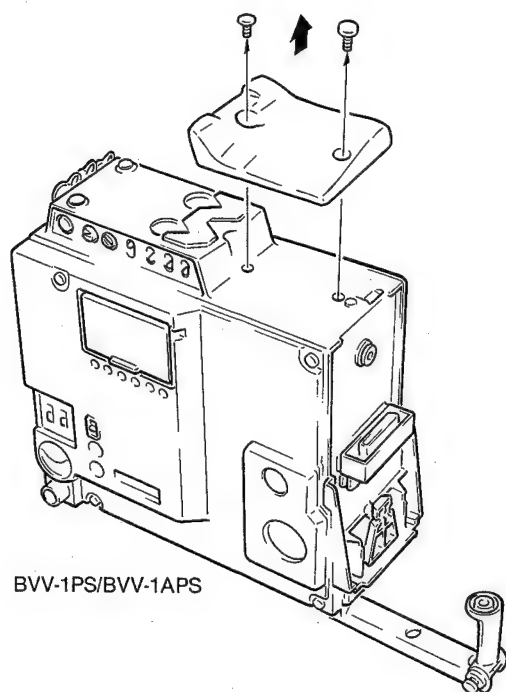
- 1 Nehmen Sie den Griff der BVP-5P ab.



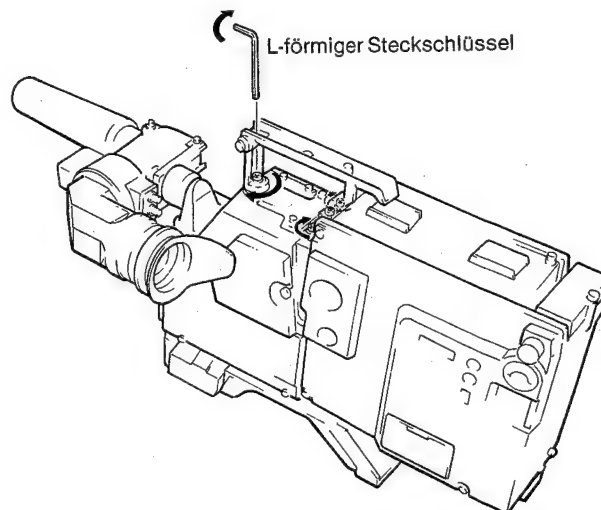
- 2 Bringen Sie das mitgelieferte Abdeckblech an den Schraubenlöchern des Griffes an.



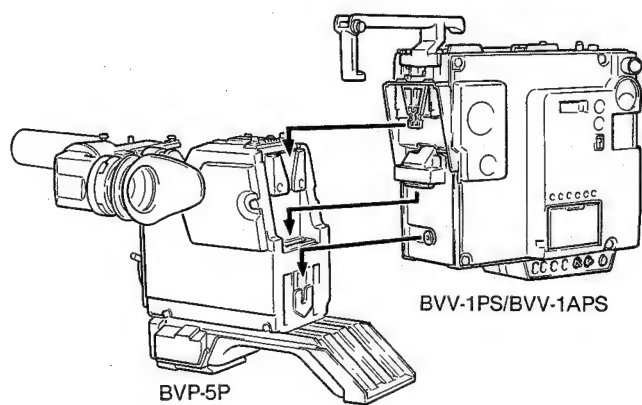
**3** Nehmen Sie die Schulterstütze vom Videorecorder ab.



**5** Ziehen Sie die Schrauben (beim Videorecorder mitgeliefert) gut fest.

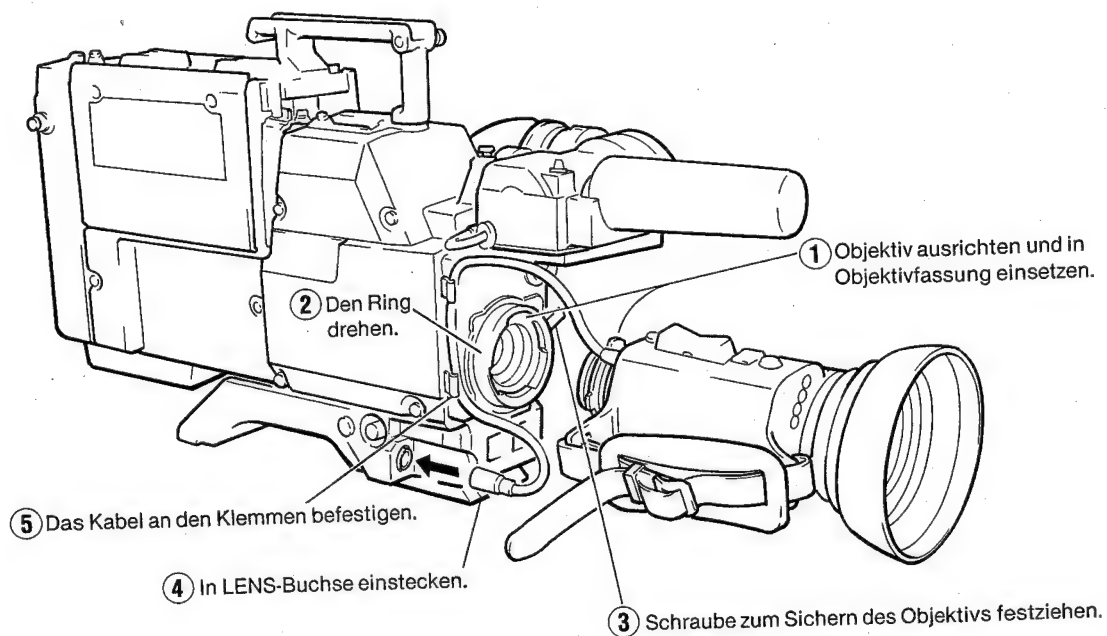


**4** Befestigen Sie den Videorecorder an der Kamera.

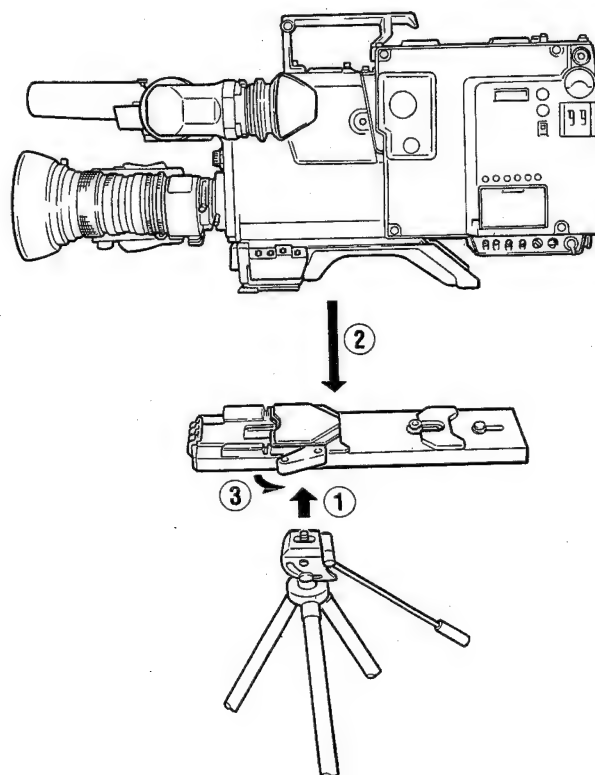


### 1-3-2. Anbringung des Objektivs

- Genauere Informationen über das Objektiv finden Sie in der Anleitung des Objektivs.



### 1-3-3. Anbringung eines Stativs

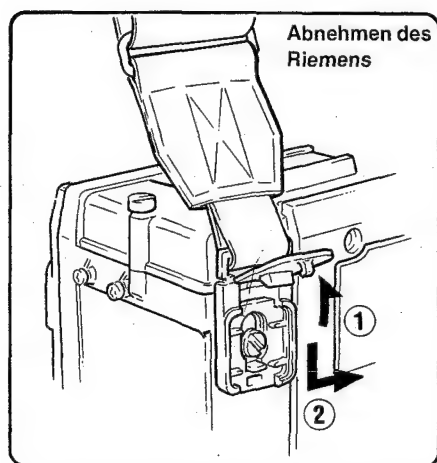
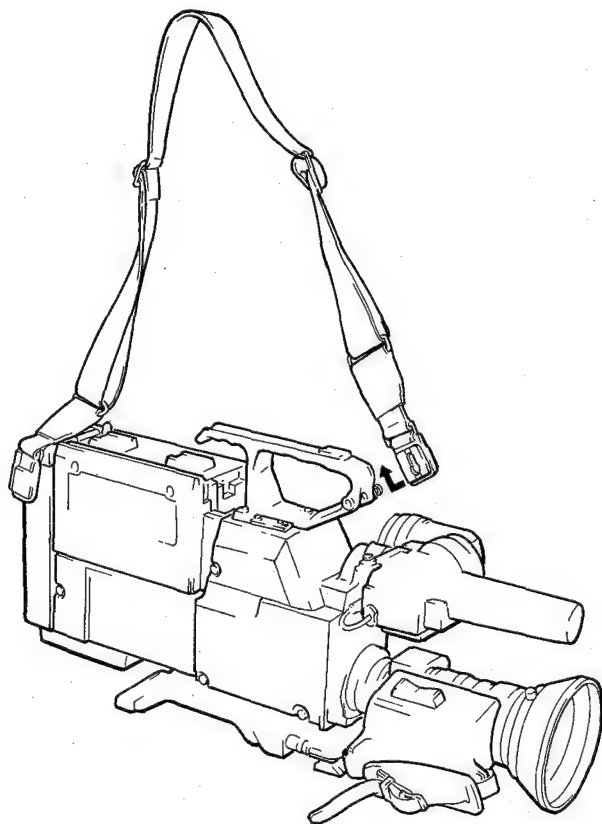


1. BEITRAG

### 1-3-4. Anbringung des Schulterriemens

## 1-4. STROMVERSORGUNG

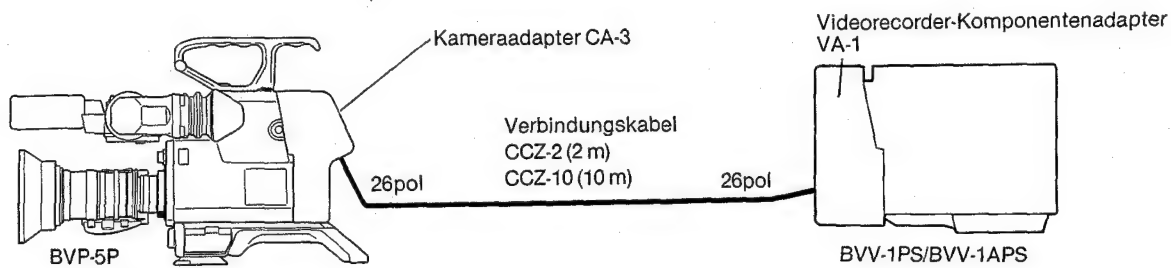
Die Stromversorgung erfolgt von dem am 50pol Anschluß der BVP-5P angeschlossenen Geräts. Lesen Sie bitte die Bedienungsanleitung des betreffenden Geräts durch.



## 1-5. ANSCHLUSS

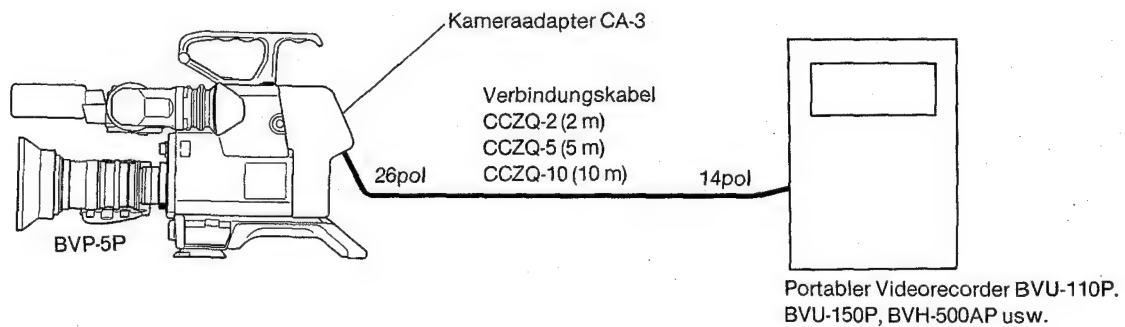
Außer im direkten Zusammenschluß mit dem BVV-1PS/BVV-1APS über die 50 pol Anschlüsse kann die BVP-5P auch wie folgt verwendet werden.

### Anschluß des BVV-1PS/BVV-1APS über ein Verbindungskabel



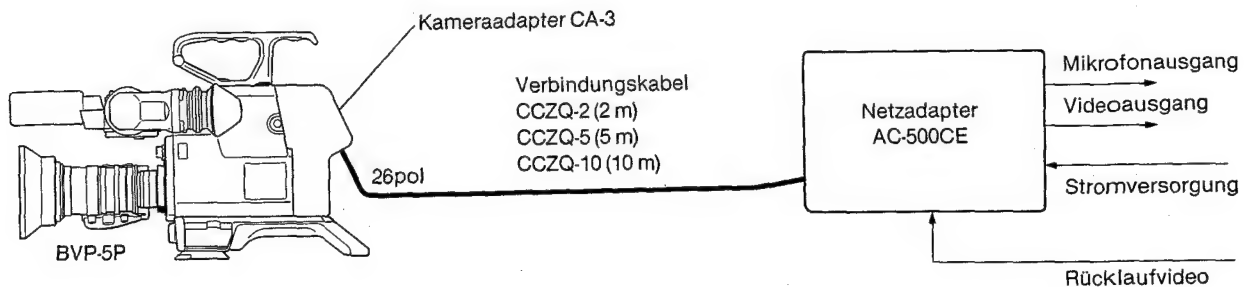
- Der FBAS/Komponenten-Adapter VA-1VP kann auf gleiche Weise angeschlossen werden.
- Auch ein portabler Videorecorder der Betacam-Serie (z.B. BVW-25P) kann über das CCZ-Kabel angeschlossen werden.

### Anschluß eines konventionellen portablen Videorecorders



- Wenn die Kamera von einem Videorecorder über ein Kamerakabel von mehr als 10 m Länge versorgt wird, kann es zu Beeinträchtigungen der Bildqualität kommen, wenn die BATT-Anzeige im Sucher zu blinken beginnt.

### Anschluß des AC-500CE



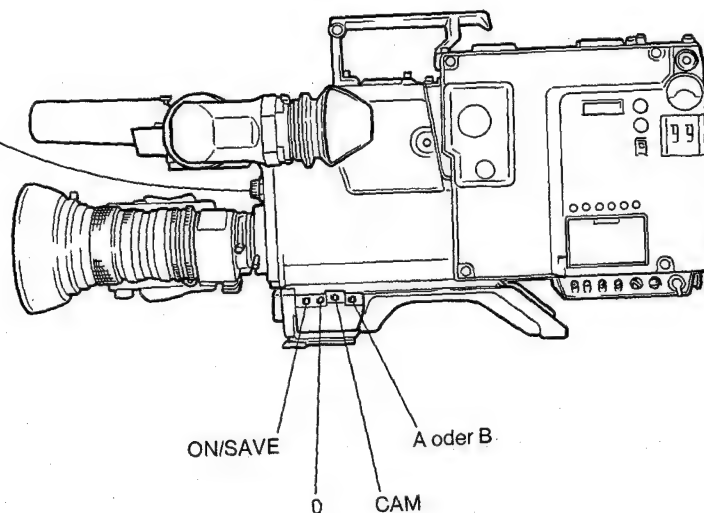
- Wird der AC-500CE über ein 4pol Kabel mit dem Videorecorder verbunden, so wird dieser mit Strom versorgt.



## 1-6. EINSTELLUNGEN

### 1-6-1. Weiß- und Schwarzabgleich

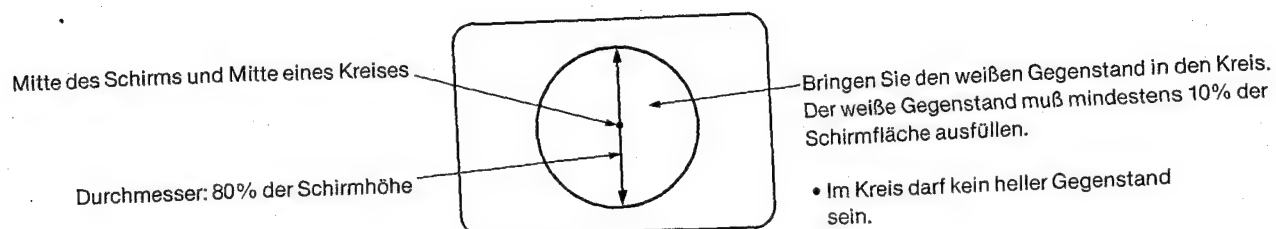
- 1 Stellen Sie den FILTER-Wähler entsprechend den Lichtverhältnissen ein.



- 2 Stellen Sie die Schalter wie abgebildet ein.

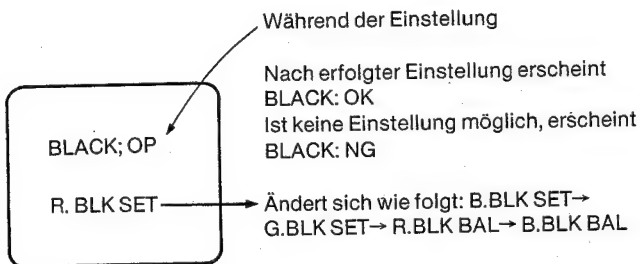
- 3 Zoomen Sie unter den gleichen Lichtverhältnissen wie bei der späteren Aufnahme auf das weiße Testbild. Statt des weißen Testbildes kann auch eine andere weiße Fläche wie z.B. ein weißes Tuch oder eine weiße Wand verwendet werden.

Folgende minimale weiße Fläche ist zur Einstellung erforderlich.



- 4 Ist eine Automatikblende vorhanden, so stellen Sie den Auto/Manuell-Schalter auf Auto. Falls nicht, stellen Sie die Blende manuell ein.

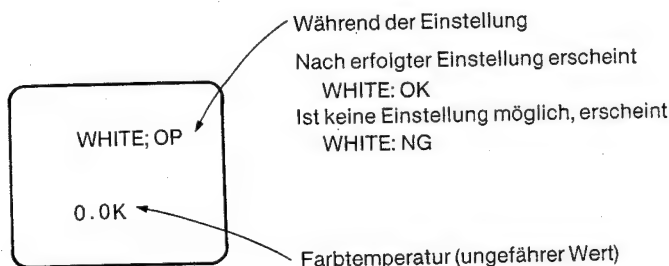
- 5** Stellen Sie den AUTO W/B BAL-Schalter auf BLK. Beim Loslassen kehrt dieser Schalter automatisch in die Mittelposition zurück. Während des Abgleichs wird folgendes in den Sucherschirm eingeblendet:



Nach einigen Sekunden ist der automatische Schwarzabgleich beendet, die W/B CENT-Anzeige leuchtet im Sucher auf, und der eingestellte Wert wird abgespeichert. Nach ca. fünf Sekunden erlischt die W/B CENT-Anzeige. Solange die W/B-Anzeige leuchtet, kann der Weißabgleich eingeleitet werden, indem man den AUTO W/B BAL-Schalter auf WHT stellt.

- Während des Schwarzabgleichs schließt sich das Objektiv.

- 6** Stellen Sie den AUTO W/B BAL-Schalter auf WHT. Während des Abgleichs wird folgendes in den Sucherschirm eingeblendet:



Nach ca. einer Sekunde ist der automatische Weißabgleich beendet, die W/B CENT-Anzeige leuchtet im Sucher auf, und der Wert wird je nach Festlegung in Schritt 1 entweder in Memory A oder B eingelesen. Nach ca. 5 Sekunden erlischt die W/B CENT-Anzeige wieder.

Weiß- und Schwarzabgleich sind damit beendet.

- Die Zeicheneinblendung kann vom Bildschirm gelöscht werden. (Siehe hierzu unter „1-9. ZEICHENEINBLENDUNG IM SUCHER“.)
- Wenn sich die Beleuchtungsverhältnisse geändert haben, braucht lediglich der Weißabgleich neu ausgeführt zu werden. Ein erneuter Schwarzabgleich ist nicht erforderlich.
- Der Schwarzabgleich braucht im allgemeinen auch dann nicht erneut ausgeführt zu werden, wenn die Kamera zwischenzeitlich einmal ausgeschaltet wurde. Nur in den folgenden Fällen ist ein erneuter Schwarzabgleich erforderlich:
  - Wenn die BVP-5P zum ersten Mal verwendet wird.
  - Wenn die BVP-5P längere Zeit nicht verwendet wurde.
  - Wenn sich die Temperatur erheblich geändert hat.
- Bei einem Objektiv mit Automatikblende kann es vorkommen, daß die Automatik den richtigen Blendenwert nicht findet und die Blende ständig öffnet und schließt. Justieren Sie dann den AUTO IRIS GAIN-Regler des Objektivs ein. (Genauer dazu finden Sie in der Bedienungsanleitung des Objektivs.)
- Wenn der AUTO W/B BAL-Schalter auf BLK gestellt wird, wird die Einstellung des GAIN-Wählers automatisch geändert und das Sucherbild kann gestört sein. Dies stellt jedoch kein Problem dar.
- Wenn die W/B CENT-Anzeige leuchtet, kann mit der nächsten Einstellung begonnen werden. Die Anzeige erlischt, wenn der Schalter in die andere Position gestellt wird, und leuchtet am Ende der Einstellung erneut auf.

**Wenn kein Schwarzabgleich möglich ist**

In einem solchen Fall erhält man im Sucher zunächst die Anzeige BLACK; NG und danach die im folgenden aufgelisteten Anzeigen. Der Schwarzabgleich muß dann erneut ausgeführt werden.

Anzeige	Ursache
HARD ERROR TRY AGAIN	Die Bezugsspannung der Einstellung kann nicht gespeichert werden.
OVER FLOW TRY AGAIN	Der Unterschied zwischen dem Bezugswert und dem momentanen Wert ist für einen automatischen Abgleich zu groß.
TIME LIMIT TRY AGAIN	Die Einstellung ist nicht innerhalb der definierten Einstellzeit möglich.
IRIS: NOT CLOSED TRY AGAIN	Die Blende wurde nicht geschlossen.
BOUNCING: TOO LONG TRY AGAIN	Der Schwarzpegel kann nicht innerhalb der definierten Zeit eingestellt werden.

**Wenn der Weißabgleich nicht ausgeführt werden kann**

In einem solchen Fall erhält man im Sucher zunächst die Anzeige WHITE; NG und dann die im folgenden aufgelisteten Anzeigen.

Treffen Sie die notwendigen Maßnahmen und führen Sie dann den Weißabgleich erneut aus.

Anzeige	Ursache
LOW LEVEL TRY AGAIN	Der Videoausgangspegel ist zu niedrig. Verstärken Sie die Beleuchtung oder stellen Sie den GAIN-Wähler anders ein.
HARD ERROR TRY AGAIN	Die Bezugsspannung der Einstellung kann nicht gespeichert werden.
TIME LIMIT TRY AGAIN	Die Einstellung ist nicht innerhalb der definierten Einstellzeit möglich.
C.TEMP.LOW CHG.FILTER TRY AGAIN	Die Farbtemperatur ist zu niedrig. Stellen Sie am FILTER-Wähler einen geeigneten Filter ein.
C.TEMP.HIGH CHG.FILTER TRY AGAIN	Die Farbtemperatur ist zu hoch. Stellen Sie am FILTER-Wähler einen geeigneten Filter ein.

**Wenn die W/B CENT-Anzeige blinkt**

Überprüfen Sie, ob der richtige Filter gewählt ist und führen Sie den Weiß- und Schwarzabgleich erneut aus.

**Wenn der WHITE BAL-Schalter auf PRESET gestellt ist**

Steht der FILTER-Wähler auf 1, so erhält man in diesem Fall einen Weißabgleich auf ca. 3200°K. Es ist dann nur ein Schwarzabgleich (AUTO W/B BAL-Schalter auf BLK stellen) erforderlich.

**Abspeichern der Weiß- und Schwarzabgleichwerte**

Die BVP-5P besitzt die beiden Memories A und B, so daß für jedes Filter zwei Weiß-/Schwarzabgleichwerte gespeichert werden können. Insgesamt können 8 Werte gespeichert werden (4 in Memory A und 4 in Memory B).

Memory A für

- Filter 1
- Filter 2
- Filter 3
- Filter 4

Memory B für

- Filter 1
- Filter 2
- Filter 3
- Filter 4

Die Speicherungen bleiben auch bei ausgeschalteter Kamera ca. eine Woche lang erhalten.

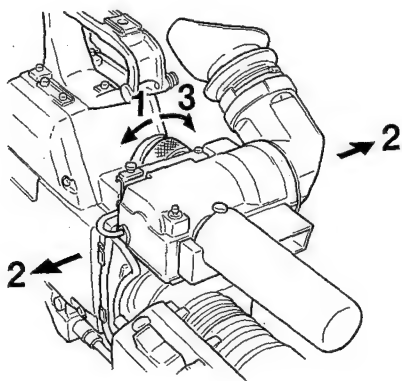
- Die Anzahl der Speicherungen kann an einem internen Schalter auf zwei (einer für Memory A und einer für Memory B) umgestellt werden. Die gespeicherten Werte haben dann keinen Zusammenhang mehr mit der Wahl des Farbtemperaturfilters. Genauer dazu siehe Teil 2 ff.

### 1-6-2. Schwarzpegeleinstellung

Die Schwarzpegeleinstellung erfolgt am AUTO W/B BAL-Schalter zusammen mit dem Schwarzabgleich. Genaueres dazu siehe Teil 2 ff.

### 1-6-3. Positionieren des Suchers

Der Sucher kann für bequemes Betrachten nach links oder rechts verschoben oder so positioniert werden, daß eine Verwendung am linken Auge möglich ist.



**1** Lösen Sie den Arretierring.

**2** Schieben Sie den Sucher zur gewünschten Position nach links oder rechts.

**3** Drehen Sie den Ring fest.

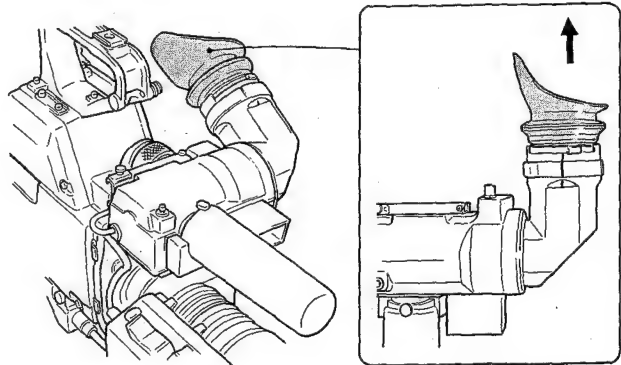
- Vor dem Einsetzen der Kamera in den Tragekoffer schieben Sie den Sucher ganz nach links (vom Objektiv aus gesehen).
- Zum Abnehmen des Suchers von der Kamera lösen Sie den Sucher-Arretierring, halten Sie den Fixierstift hochgezogen und nehmen Sie den Sucher dann ab.

### Abnehmen der Okularmuschel

Bei abgenommener Okularmuschel kann direkt auf den Sucherschirm geblickt werden.

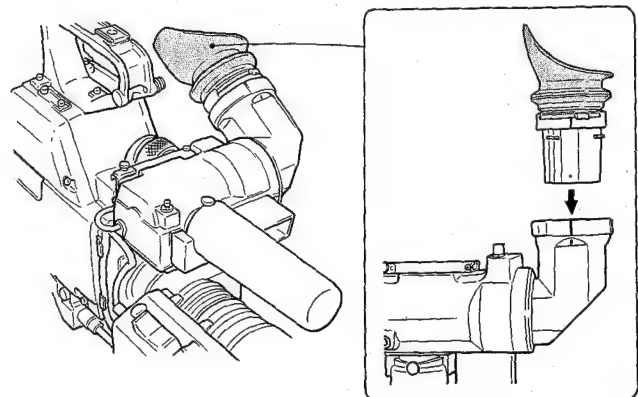
### Abnehmen der Okularmuschel

- 1** Den Okularmuschelring so drehen, daß die Linien aufeinander ausgerichtet sind.
- 2** Die Okularmuschel abziehen.



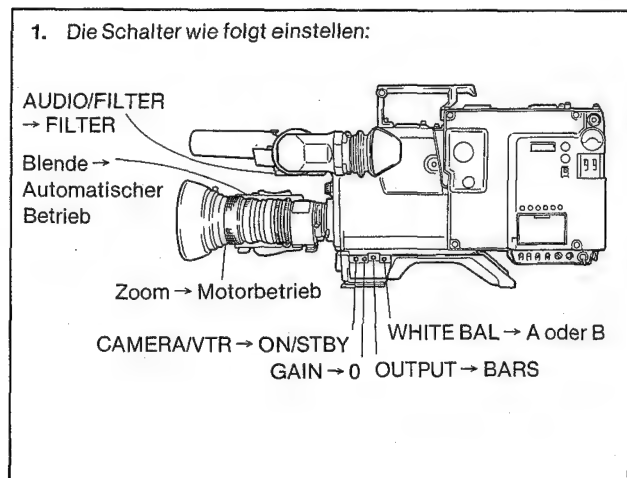
### Anbringen der Okularmuschel

- 1** Die Linie am Sucher auf den Punkt an der Okularmuschel ausrichten und die Muschel aufstecken.
- 2** Den Okularmuschelring bis zum Anschlag drehen.



## 1-7. FUNKTIONSKONTROLLEN

Im folgenden ist ein Bedienungsbeispiel dargestellt. Genauere Informationen zur Bedienung des Objektivs entnehmen Sie bitte der Bedienungsanleitung des Objektivs.



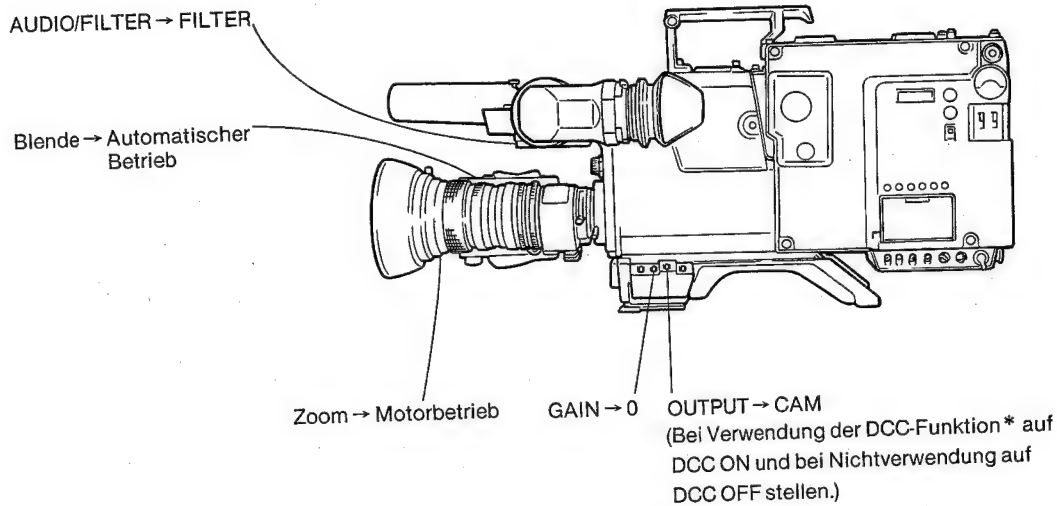
2. Den Sucher positionieren.
3. Sicherstellen, daß die Farbbalken auf dem Sucherschirm erscheinen.
4. Den OUTPUT (DCC)-Wähler auf BARS und den AUTO W/B BAL-Schalter auf WHI stellen. Dann überprüfen, ob sich bei jedem Umstellen des AUTO W/B BAL-Schalters auf WHT die Anzeige wie folgt ändert: MODE 1 → MODE 2 → MODE 3.
5. Den BRIGHT- und CONTR-Regler so einstellen, daß die Farbbalken klar auf dem Sucherschirm abgebildet werden.
6. Den FILTER-Wähler wie folgt umstellen: 1 → 2 → 3 → 4, und überprüfen, ob die richtige FILTER-Anzeige auf dem Sucherschirm erscheint.
7. Den OUTPUT (DCC)-Wähler auf CAM stellen.

8. Die Kamera auf ein Motiv richten.
9. Das Motiv am Fokusserring scharf einstellen und überprüfen, ob das Bild auf dem Sucherschirm erscheint.
10. Das Motorzoom überprüfen.
11. Das Zoom auf manuellen Betrieb schalten.
12. Die Funktion des manuellen Zooms überprüfen.
13. Das Zoom auf Motorbetrieb schalten.
14. Die Kamera auf Motive unterschiedlicher Helligkeit richten und die Funktion der automatischen Blendeneinstellung prüfen.
15. Auf manuelle Blendeneinstellung schalten.
16. Den Blendenring drehen, um die Funktion der manuellen Blendeneinstellung zu prüfen.
17. Die Sofort-Automatik-Taste gedrückt halten, um vorübergehend auf automatische Blendeneinstellung zu schalten. Dann die Kamera auf Motive unterschiedlicher Helligkeit richten, um die Funktion der Einstellung zu prüfen.
18. Auf automatische Blendeneinstellung schalten.
19. Den GAIN-Wähler auf 0, auf 9 und dann auf 18 stellen. Dabei überprüfen, ob sich die Blende schließt und die GAIN UP-Anzeige leuchtet.
20. Den GAIN-Wähler auf 0 stellen.

## 1-8. BETRIEB

### 1-8-1. Vorbereitung

Vor dem Betrieb stellen Sie die Schalter wie folgt ein:



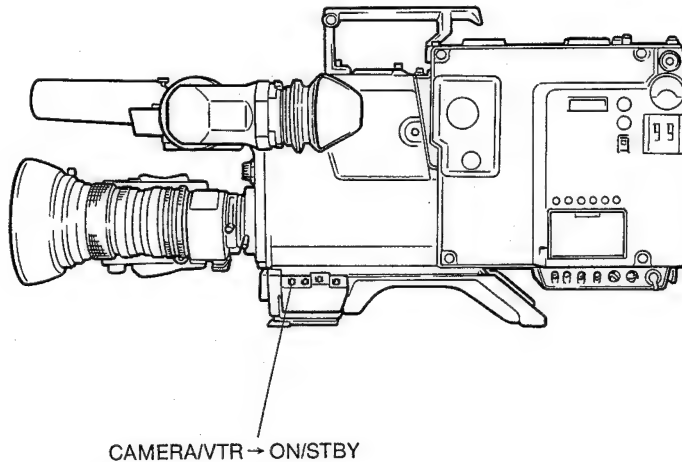
#### \* DCC-Funktion (Kontrastautomatik)

Wenn bei einer Gegenlichtaufnahme (Motiv vor sehr hellem Hintergrund) der Ausgangspegel auf die Helligkeit des Motivs abgeglichen wird, so sind im Hintergrund, bedingt durch Sättigung des Ausgangspegels, keine Details mehr sichtbar. Abhilfe schafft hier die DCC-Funktion, die in folgenden Fällen eingesetzt werden sollte.

- Wenn bei gutem Wetter ein Motiv im Schatten aufgenommen wird.
- Wenn beispielsweise Leute in einem Auto oder Zimmer aufgenommen werden und gleichzeitig auch die Szene außerhalb des Fensters deutlich sichtbar sein soll.
- Wenn das Motiv sehr hohe Kontraste enthält.

## 1-8-2. Aufnahme

- 1 Schalten Sie die Kamera und die angeschlossenen Geräte ein.



- 2 Legen Sie die Cassette ein.
- 3 Wählen Sie einen geeigneten Filter.
- 4 Stellen Sie den Weiß- und Schwarzabgleich ein.  
**Wenn der Weiß- und Schwarzabgleichwert bereits gespeichert wurde,**  
stellen Sie den WHITE BAL-Schalter auf A oder B.
- 5 Richten Sie die Kamera auf das Motiv und stellen Sie Schärfe und Zoom ein.
- 6 Drücken Sie die VTR START-Taste zum Starten der Aufnahme. Die REC-Anzeige im Sucher leuchtet während der Aufnahme.
- 7 Zum Stoppen der Aufnahme drücken Sie die VTR START-Taste erneut.

**Wenn kein Weiß- und Schwarzabgleichwert gespeichert ist, aber unmittelbar mit der Aufnahme begonnen werden soll,**  
stellen Sie den WHITE BAL-Schalter auf PRESET und den AUTO W/B BAL-Schalter auf BLK. Man erhält dann einen Weiß- und Schwarzabgleich für 3200 ° K.

### Durchführung des Weiß- und Schwarzabgleichs

- 1) Stellen Sie den WHITE BAL-Schalter auf A oder B.
  - 2) Richten Sie die Kamera auf einen weißen Gegenstand.
  - 3) Stellen Sie den AUTO W/B BAL-Schalter auf BLK.  
Sobald die W/B CENT-Anzeige im Sucher aufleuchtet und BLACK: OK auf dem Sucherschirm erscheint, ist der Schwarzabgleich beendet.
  - 4) Stellen Sie den AUTO W/B BAL-Schalter auf WHT.  
Sobald die W/B CENT-Anzeige im Sucher aufleuchtet und WHITE: OK erscheint, ist der Weißabgleich beendet.
- Genauer entnehmen Sie bitte dem Abschnitt „1-6-1. Weiß- und Schwarzabgleich“.

### Überprüfung des Videopegels

An den Stellen des Sucherbildes, an denen der Videopegel des Bildes 70% (IRE-Einheit) beträgt, erscheint ein Streifenmuster, mit dessen Hilfe die Blende manuell eingestellt werden kann. Das Zebromuster kann am TALLY/ZEBRA ON/OFF-Schalter abgeschaltet werden, allerdings nur, wenn der betreffende Schalter an einer internen Leiterplatte auf OFF gestellt ist. Genauer dazu siehe Teil 2.

### Aufnahmen bei schlechten Beleuchtungsverhältnissen

Bei unzureichender Beleuchtung erscheint :LOW LIGHT mit blinkendem Doppelpunkt auf dem Sucherschirm, und die Bildqualität verschlechtert sich. Stellen Sie dann den GAIN-Wähler auf die Position 9 oder 18, um den Videoausgangspegel um 9 dB bzw. 18 dB anzuheben. Durch Umstellen eines Schalters an einer internen Leiterplatte ist statt einer Anhebung um 18 dB auch eine Anhebung um 24 dB möglich. Siehe hierzu Teil 2 ff.

- Normalerweise muß der Wähler auf 0 stehen.

## 1-9. ZEICHENEINBLENDUNG IM SUCHER

Die Schaltereinstellungen, Aussagen über die automatischen Einstellungen usw. können in den Sucherschirm eingeblendet werden. Hierbei sind drei unterschiedliche Anzeigebetriebsarten zu unterscheiden.

In der Betriebsart 3 erhält man die meisten und in der Betriebsart 1 nur einige wenige Anzeigen. Die Betriebsart 2 liefert noch einige Zusatzanzeigen zur Betriebsart 1. Die jeweils gewählte Betriebsart wird ebenfalls im Sucher angezeigt.

### 1-9-1. Ändern der Anzeigebetriebsart

**1** Stellen Sie den CAM/BARS-Wähler auf BARS.

**2** Stellen Sie den AUTO WHT/BLK-Wähler auf WHT. Jedesmal, wenn dieser Wähler auf WHT gestellt wird, ändert sich die Betriebsart zyklisch wie folgt: 1 → 2 → 3 → 1 →.

Die gewählte Betriebsart bleibt auch bei ausgeschalteter Kamera ca. eine Woche lang gespeichert. Im Falle der Festwertspeicherung wird jedoch stets automatisch Betriebsart 3 gewählt.

### 1-9-2. Anzeige der Schalterstellungen

Die Schalterstellungen werden beim Einschalten der Kamera nacheinander ca. drei Sekunden lang eingeblendet (außer der GAIN-Anzeige). Auch beim Ändern einer Einstellung erscheint die betreffende Anzeige ca. drei Sekunden lang und verschwindet dann wieder.

x: Keine Anzeige

o: Wird angezeigt

Anzeige	Bedeutung	Betriebsart		
		1	2	3
GAIN: 0 DB	Einstellung des GAIN-Wählers (0 DB, 9 DB, 18 DB)	x	x	o
DCC: ON	Einstellung des OUTPUT (DCC)-Wählers (ON oder OFF)	o	o	o
FILTER: 1	Einstellung des FILTER-Wählers (1, 2, 3, 4)	x	x	o
WHITE: PRESET	Einstellung des WHITE BAL-Wählers (PRESET, A CH, B CH)	o	o	o
0.0K	Farbtemperatur*	x	o	o
WHITE: PRESET	Einstellung des WHITE BAL-Wählers (PRESET, A CH, B CH)	o	o	o
0.0K	Farbtemperatur*	x	o	o

\* Der angezeigte Wert ist mit 1000 zu multiplizieren. Es handelt sich um einen Näherungswert.

### 1-9-3. Warnanzeigen

Wenn keine einwandfreie Aufnahme möglich ist, werden zur Warnung folgende Anzeigen eingeblendet.

Anzeige	Bedeutung	Betriebsart		
		1	2	3
:MEMORY NG (Doppelpunkt blinkt.)	Es ist kein Wert mehr gespeichert, und man erhält den voreingestellten Wert. Der Weiß- und Schwarzabgleich muß erneut ausgeführt werden.	o	o	o
:LOW LIGHT (Doppelpunkt blinkt.)	Die Beleuchtung ist unzureichend, und der Videoausgangspegel liegt unter dem Nennwert.	x	x	o



## 1-9-4. Anzeige der automatischen Einstellungen

Diese Anzeigen werden ca. fünf Sekunden lang eingeblendet und verschwinden dann wieder.

Anzeige	Bedeutung	Betriebsart		
		1	2	3
WHITE; OP 0.0K	Weißabgleich wird gerade ausgeführt. Farbtemperatur	x	x	o
WHITE; OK 0.0K	Weißabgleich beendet.	x	x	o
WHITE; NG LOW LEVEL TRY AGAIN	Aufgrund zu geringen Videoausgangspegels konnte der Weißabgleich nicht ausgeführt werden. Den Abgleich erneut ausführen.	x	o	o
WHITE; NG HARD ERROR TRY AGAIN	Weißabgleich nicht ausführbar, da die Bezugsspannung der Einstellung nicht gespeichert werden kann. Den Abgleich erneut ausführen.*	x	o	o
WHITE; NG TIME LIMIT TRY AGAIN	Weißabgleich nicht innerhalb der definierten Abgleichszeit möglich. Den Abgleich erneut ausführen.*	x	o	o
WHITE; NG C.TEMP. LOW CHG. FILTER TRY AGAIN	Weißabgleich aufgrund zu niedriger Farbtemperatur nicht möglich. Ein geeignetes Filter wählen und den Abgleich erneut ausführen.	x	o	o
WHITE; NG C.TEMP. HIGH CHG. FILTER TRY AGAIN	Weißabgleich aufgrund zu hoher Farbtemperatur nicht möglich. Ein geeignetes Filter wählen und den Abgleich erneut ausführen.	x	o	o

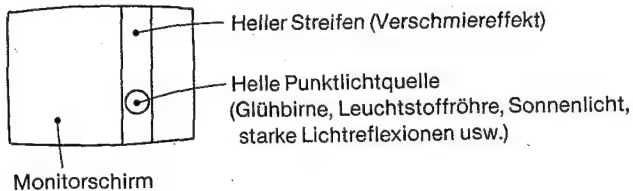
Anzeige	Bedeutung	Betriebsart		
		1	2	3
BLACK; OP R.BLK SET	Schwarzabgleich wird momentan ausgeführt. Folgende Abgleichpunkte werden angezeigt: B.BLK SET, G.BLK SET, R.BLK BAL, B.BLK BAL.	x	o	o
BLACK; OK	Schwarzabgleich beendet.	x	o	o
BLACK; NG HARD ERROR TRY AGAIN	Schwarzabgleich nicht möglich, da die Bezugsspannung der Einstellung nicht gespeichert werden kann. Den Abgleich erneut ausführen.*	x	o	o
BLACK; NG OVER FLOW TRY AGAIN	Schwarzabgleich nicht möglich, da der Unterschied zwischen Bezugswert und momentanem Wert zu groß ist. Den Abgleich erneut ausführen.*	x	o	o
BLACK; NG TIME LIMIT TRY AGAIN	Schwarzabgleich nicht innerhalb der definierten Einstellzeit möglich. Den Abgleich erneut ausführen.*	x	o	o
BLACK; NG IRIS; NOT CLOSED TRY AGAIN	Schwarzabgleich nicht möglich, da die Blende nicht geschlossen war. Den Abgleich erneut ausführen.	x	o	o
BLACK; NG BOUNCING TOO LONG TRY AGAIN	Schwarzpegeleinstellung nicht innerhalb der definierten Zeit möglich. Die Einstellung erneut ausführen.*	x	o	o

\* Erscheint wiederholt BLACK; NG oder WHITE; NG, so ist eine interne Überprüfung der Kamera erforderlich. Siehe hierzu Teil 2 ff.

## 1-10. DURCH CCD-WANDLER VERURSACHTE SONDEREFFEKTE

### Verschmiereffekt

Dieser Effekt tritt auf, wenn die Aufnahmeszene eine sehr helle Punktlichtquelle enthält.



### Moire-Muster

Bei Betrieb in hohen Temperaturen kann das gesamte Bild durch ein stationäres Moire-Muster leicht gestört sein.

### Welleneffekt

Beim Aufnehmen von feinen, geraden Streifen können diese leicht wellenförmig erscheinen.

## 1-11. VORSICHTSMASSNAHMEN

**Die Kamera stets mit großer Vorsicht behandeln**

### Nach der Verwendung der Kamera

Schalten Sie die an die Kamera angeschlossenen Geräte aus.

### Verwendungs- und Aufbewahrungsplatz

Betreiben Sie die Kamera nicht an folgenden Plätzen, und bewahren Sie sie dort auch nicht auf:

- extrem heiße oder feuchte Plätze (erlaubter Temperaturbereich von  $-20^{\circ}\text{C}$  bis  $+45^{\circ}\text{C}$ )
- Plätze, an denen die Kamera direkt der Sonnenbestrahlung, übermäßigem Staub und Erschütterungen ausgesetzt ist.

Bewahren Sie die Kamera waagrecht liegend auf und sorgen Sie für ausreichende Luftzirkulation.

### Reinigen Sie das Sucherobjektiv mit einer handelsüblichen Objektiv-Reinigungsflüssigkeit.

Verwenden Sie keine Lösungsmittel wie Alkohol, Benzin oder Verdünner.

## 1-12. TECHNISCHE DATEN

Kamera	
Bildwandler	3-Chip-CCD, 2/3 Zoll, Zeilentransfer
System	RGB, 3 CCD-Elemente (mit Quarzfilter)
Spektralsystem	F1,4 prisma
Eingebaute Filter	1: 3200°K 2: 5600°K + 1/4ND 3: 5600°K 4: 5600°K + 1/16ND
Objektivfassung	Spezial-Bajonett
Videoausgang	PAL, 1,0 Vss, 75 Ohm, unsymmetrisch, Video positiv Zwei Ausgänge (TEST OUT, VTR)
Anschlüsse	VTR: 50 pol (Videoausgang, Mikrofonausgang, Synchronsignalausgang, Stromversorgungseingang) TEST OUT: BNC-Buchse LENS: 12 pol
Empfindlichkeit	2000 Lux bei f4,5 (typisch), 89,9% Refl.
Min. Beleuchtungsstärke	15 Lux (f1,4 +18 dB Verstärkung)
Video-Signal-Rauschabstand	55 dB (typisch)
Horizontalauflösung	550 Zeilen (in der Mitte)
Farbdeckung	unter 0,05% über den gesamten Bildschirm
Geometrische Verzerrungen	Keine
Stromversorgung	12 V Gleichspannung (10,5 V - 17 V)
Leistungsaufnahme	10,5 W
Betriebstemperatur	-20°C bis +45°C
Lagertemperatur	-20°C bis +60°C
Gewicht	3,2 kg mit Sucher
Abmessungen	Einheit: mm

Sucher	
Bildröhre	1,5-Zoll-Monochrome BRIGHT-Regler, CONTR-Regler, TALLY/ZEBRA ON/OFF-Schalter, PEAKING-Schalter, AUDIO/FILTER-Schalter, AUDIO CH-1-Regler
Auflösung	500 TV-Zeilen
Mikrofon	ausgeprägte Richtwirkung

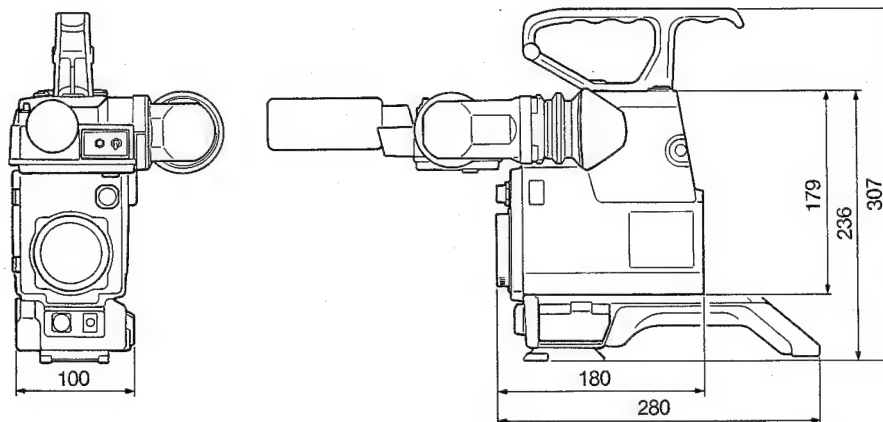
### Mitgeliefertes Zubehör

Stativadapter × 1  
 Verlängerungsplatte × 1  
 Abzieher × 1  
 Außenmikrofonadapter × 1  
 L-förmiger Steckschlüssel (2,5 mm Ø) × 1  
 L-förmiger Steckschlüssel (3 mm Ø) × 1  
 50 pol Kappe × 1  
 Regenschutz × 1  
 Kappe für Schraubenlöcher × 1  
 Schraube × 2  
 Bedienungs- und Wartungsanleitung × 1

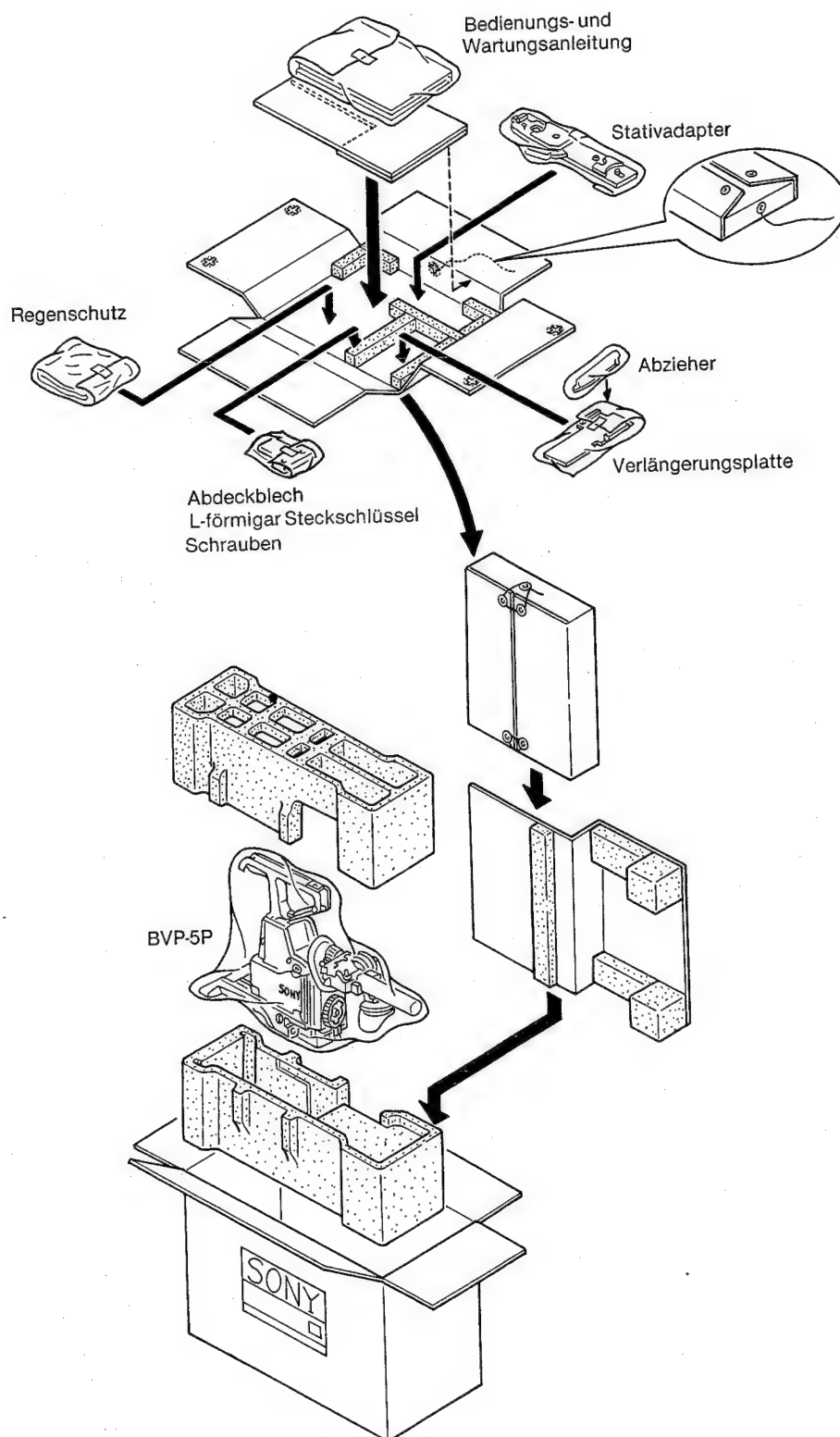
### Empfohlenes Zubehör

Portabler Videorecorder der Betacam-Serie  
 BVV-1PS, BVV-1APS, BVW-25P  
 Kameraadapter CA-3  
 Netzadapter AC-500CE  
 Mikrofon C-74  
 Kamerakabel CCZQ-2 (2 m),  
 CCZQ-5 (5 m),  
 CCZQ-10 (10 m),  
 CCZ-2 (2 m),  
 CCZ-10 (10 m)

Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.



## 1-13. VERPACKUNG DER BVP-5P



## 1-14. BEDIENUNG DES BETACAM-SYSTEMS BVW-105P

### 1-14-1. Merkmale

#### Kompakt und leicht

Die Kamera BVP-5P (mit 3-Chip CCD-Bildwandler), der Videorecorder BVV-1PS/BVV-1APS, das Objektiv, der Akku und die Cassette wiegen zusammen nur etwa 8,95 kg.

#### Kabelloser Direktanschluß

Kamera, Videorecorder, Sucher, Akku, Mikrofon usw. können direkt (d.h. ohne Kabel) miteinander verbunden werden.

#### Geringe Leistungsaufnahme

Das System zeichnet sich durch geringe Leistungsaufnahme aus. Bei Zusammenschluß mit dem BVV-1PS/BVV-1APS ermöglicht ein Akku vom Typ NP-1 einen ca. 50 minütigen Betrieb.

#### Video- und Audio-Hinterbandkontrolle

Das Video- und Audio-Hinterbandkontrollsystem gestattet ein unmittelbares Überprüfen des Aufnahmebildes und -tons.

#### Hochqualitatives Bild

Das neuentwickelte Aufnahmesystem mit einer 1/2-Zoll-Betaformat-Cassette zeichnet sich durch eine Bildqualität aus, die der eines 1-Zoll-Videorecorders kaum nachsteht.

#### Eingebauter Zeitcode-Generator

Der eingebaute Zeitcode-Generator gestattet ein Aufnehmen des Zeitcodes während des Betriebs. Auch das Benutzer-Bit kann aufgezeichnet werden.

#### Unabhängige Zeitcodespur

Die Zeitcodespur ist von der Videospur getrennt, so daß Aufnehmen und Löschen des Zeitcodes mit einem Schnitt-Steuergerät möglich ist.

#### Zwei Tonkanäle

Der Ton vom eingebauten Mikrofon, von Außenmikrofonen oder von anderen Tonquellen kann auf zwei Tonkanälen getrennt aufgezeichnet werden.

#### Zusammenfügen von Einzelszenen

Dank einer speziellen Vertikalintervall-Timing Einrichtung können einzelne Aufnahmeszenen mit störungsfreien Schnittstellen aneinandergefügt werden.

#### Warnsystem

Bei Betriebsstörungen leuchten Warnanzeigen auf, und ein Warnton ist sowohl über Lautsprecher als auch über Ohrhörer zu hören.

#### Anzeige für verbleibende Aufnahmezeit

Im Sucher wird die Aufnahmerestzeit angezeigt.

#### Verwendung des Drahtlos-Mikrofonsystems

Ein Empfänger aus dem Sony Drahtlos-Mikrofonsystem kann angebracht werden.

#### Zusätzlicher Akku

Zusammen mit den im Akkufach der BVV-1PS/BVV-1APS eingesetzten Akku kann ein weiterer Akku verwendet werden.

#### Dolby\*-C Rauschverminderungssystem für bessere Tonqualität

Das in diesem Gerät verwendete Dolby-C Rauschverminderungssystem liefert einen besseren Signal-Rauschabstand und einen größeren Dynamikbereich. Zum Einschalten des Dolby-Schaltkreises siehe Abschnitt 2 der BVV-1PS/BVV-1APS-Bedienungsanleitung.

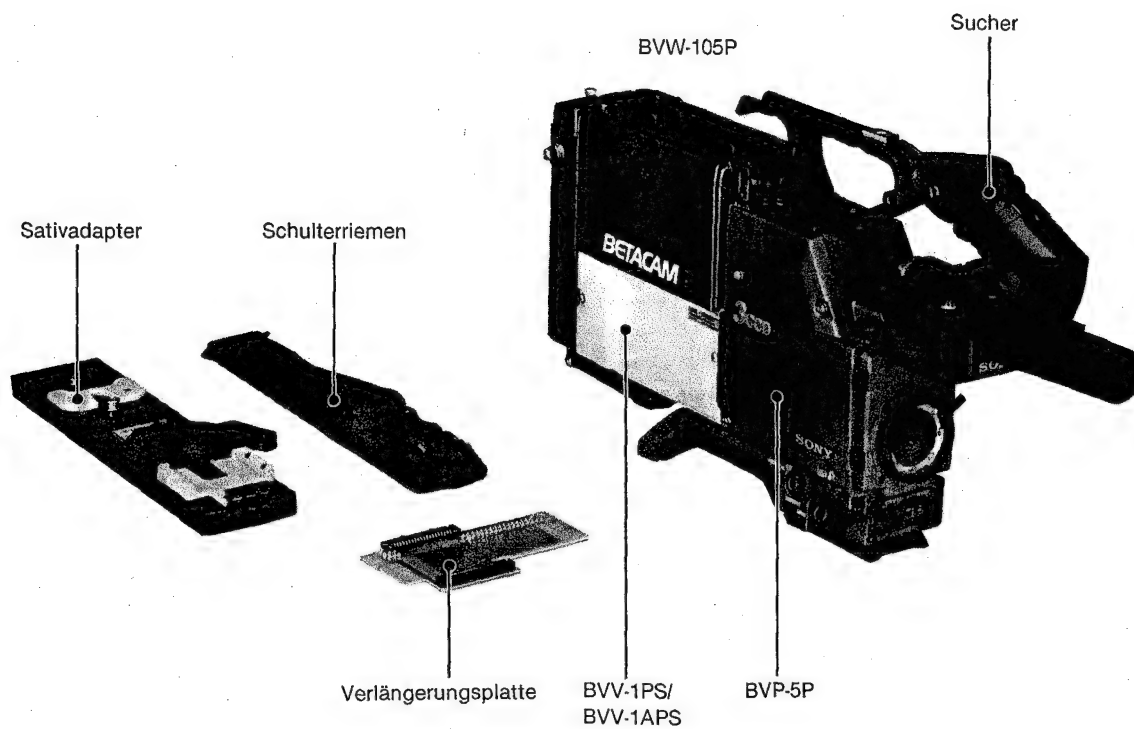
#### Hinweis

Mit einem BVV-1PS der Serien-Nr. 49999 oder niedriger arbeiten die folgenden Funktionen nicht:

- Tonpegelanzeige im Sucher.
- AufnahmepegelEinstellung von Tonkanal 1.

\* „Dolby“ und das Doppel-D-Symbol sind Warenzeichen der Dolby Laboratories Licensing Corporation. Das Dolby-Rauschverminderungssystem wird unter Lizenz der Dolby Licensing Corporation hergestellt.

## 1-14-2. Bestandteile des BVW-105P-Systems



Tragekoffer\*  
 L-förmiger Steckschlüssel (3 mm Ø)  
 L-förmiger Steckschlüssel (2,5 mm Ø)  
 Schrauben  
 Regenschutz  
 Abdeckblech für Schraubenlöcher  
 Batteriefachdeckelband  
 Abzieher  
 50pol Kappen  
 Zeitcodekabel

\* Der Tragekoffer, wird beim Betacam-System BVW-105P mitgeliefert. Bei  
 getrenntem Kauf des Videorecorders BVV-1PS/BVV-1APS und der Kamera  
 BVP-5P ist dagegen kein Tragekoffer mitgeliefert.

### 1-14-3. Überprüfungen

Vor der Aufnahme wird empfohlen, die folgenden Punkte zu überprüfen, um sicherzustellen, daß das Betacam-System einwandfrei funktioniert. Zur Bildkontrolle verwenden Sie hierbei einen Farbmonitor.

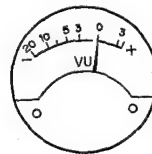
#### 1. Vorbereitung

1. Einen vollgeladenen Akku einsetzen.

2. POWER-Schalter → ON

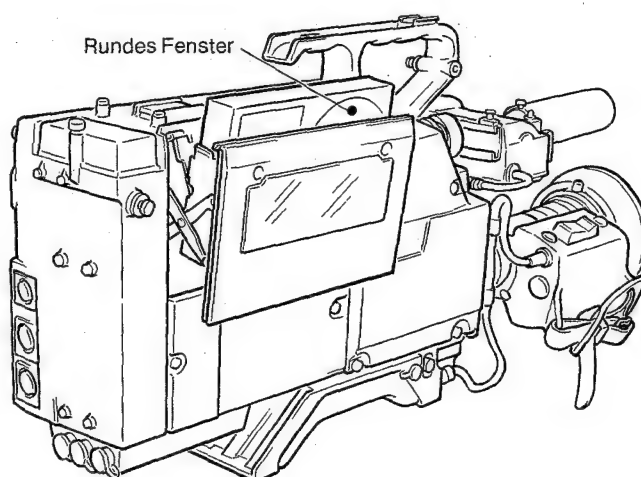
3. Die HUMID-Anzeige darf nicht leuchten.

4. Den Akkuzustand überprüfen.  
Den METER SELECT-Schalter auf BATT stellen und prüfen, ob der Instrumentenzeiger in die grüne Zone ausschlägt.



5. Falls erforderlich, den Zeitcode oder Benutzerbit einstellen.

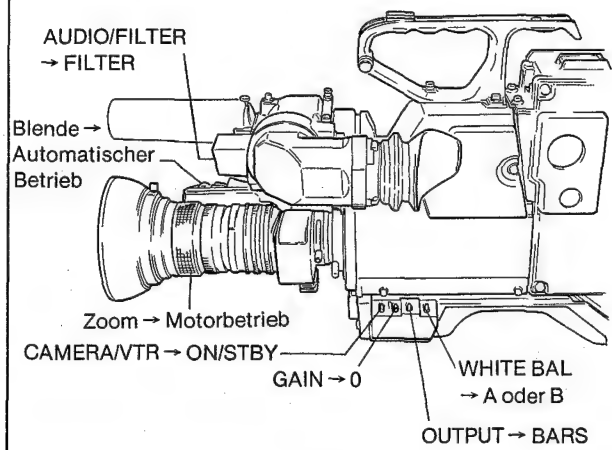
6. Eine Cassette einsetzen.



- Sicherstellen, daß die Löschschutzsperre unten an der Cassette vorhanden ist.

## 2. Überprüfen der Kamera

1. Die Schalter wie folgt einstellen:



2. Den Sucher positionieren.

3. Überprüfen, ob die Farbbalken im Sucher erscheinen.

4. Den OUTPUT, CCD-Wähler auf BARS stellen. Dann den AUTO W/B BAL-Schalter auf WHT stellen, um die Anzeigebetriebsart zu ändern.

5. Den BRIGHT- und CONTR-Regler am Sucher so einstellen, daß die Farbbalken klar im Sucher zu sehen sind.

6. Den FILTER-Wähler nacheinander auf 1 → 2 → 3 → 4 stellen und überprüfen, ob der richtige Wert im Sucher angezeigt wird.

7. Den OUTPUT (DCC)-Wähler auf CAM stellen.

8. Die Kamera auf ein geeignetes Motiv richten.

9. Das Motiv am Fokusserring scharfstellen. Überprüfen, ob das Motiv auf dem Sucherschirm erscheint.

10. Die Funktion des Motorzooms überprüfen: Bei Drücken der Motorzoomtaste wird vom Weitwinkel- in den Telebereich gefahren und umgekehrt.

11. Auf manuellen Zoombetrieb schalten.

12. Die Funktion des manuellen Zooms prüfen: Beim Drehen des manuellen Zoomhebels wird vom Weitwinkel- in den Telebereich gefahren und umgekehrt.

13. Das Zoom auf Motorbetrieb schalten.

14. Die Kamera auf Motive mit unterschiedlicher Helligkeit richten und die Blendenaomatik überprüfen.

15. Auf manuelle Blendeneinstellung schalten.

16. Den Blendenring drehen und überprüfen, ob sich die Blende ändert.

17. Die Sofort-Automatik-Taste gedrückt halten, um kurz auf automatische Blendeneinstellung zu schalten. Die Kamera dann auf Motive verschiedener Helligkeit richten und die Funktion der Blendenaomatik überprüfen.

18. Auf automatische Blendeneinstellung schalten.

19. Den GAIN-Wähler auf 9, dann auf 18 stellen und überprüfen, ob sich die Blende schließt und die GAIN UP-Anzeige im Sucher aufleuchtet.

20. Den GAIN-Wähler auf 0 stellen.

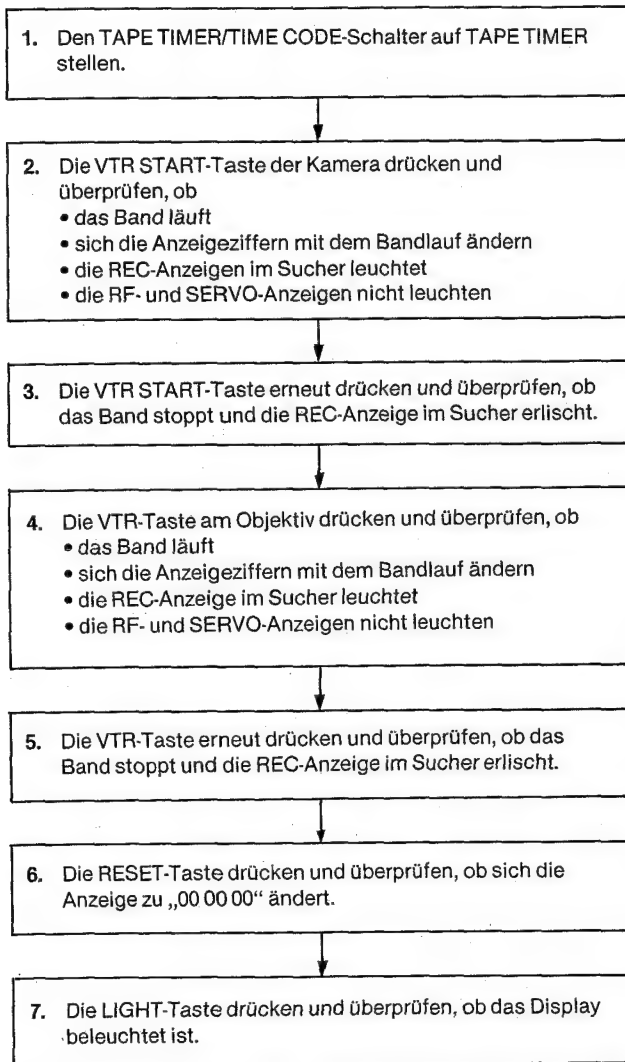
21. Den AUDIO/FILTER-Schalter auf AUDIO stellen und überprüfen, ob die FILTER/AUDIO-Anzeige den Audiopegel anzeigt.



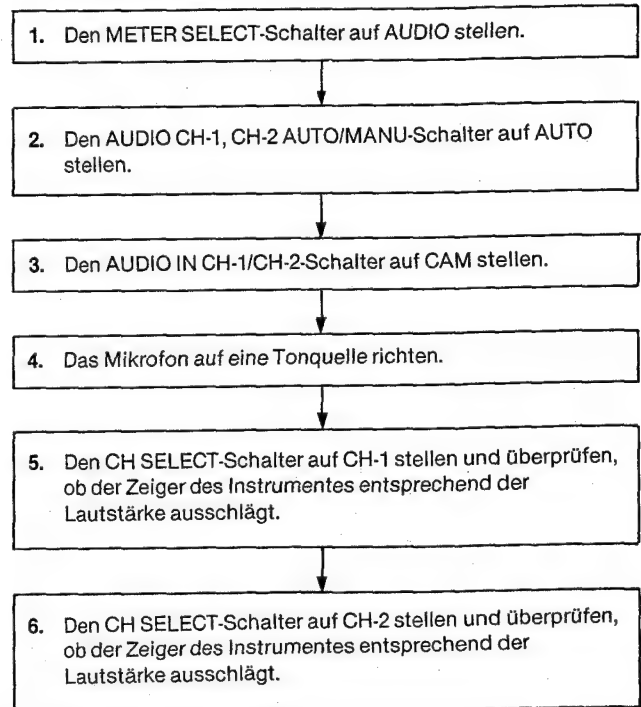
### 3. Überprüfen des Videorecorders

Führen Sie die Schritte 3-1. bis 3-5. der Reihe nach aus.

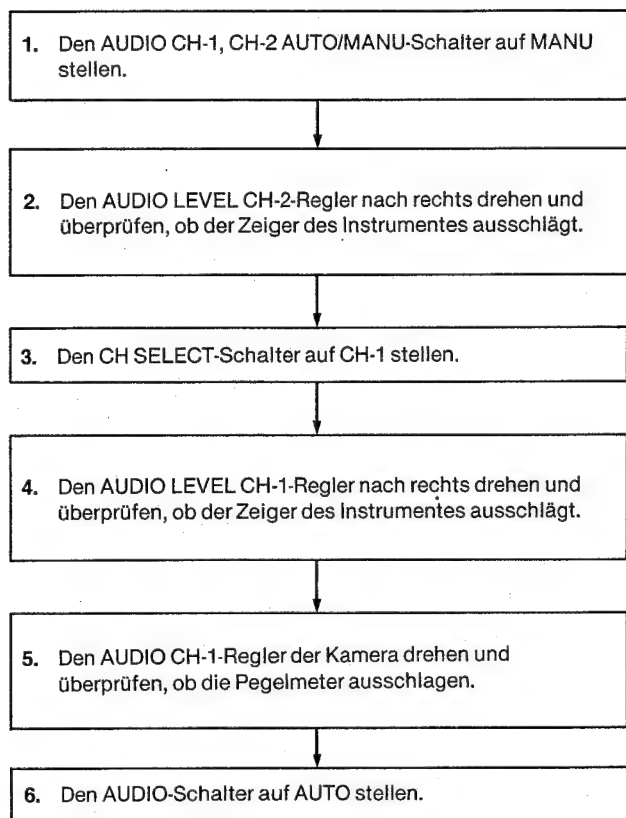
#### 3-1. Überprüfen des Bandtransports



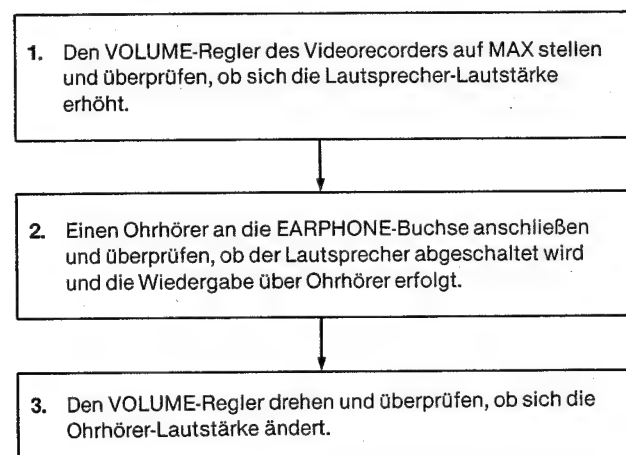
#### 3-2. Überprüfen der automatischen Aufnahmepegel-einstellung



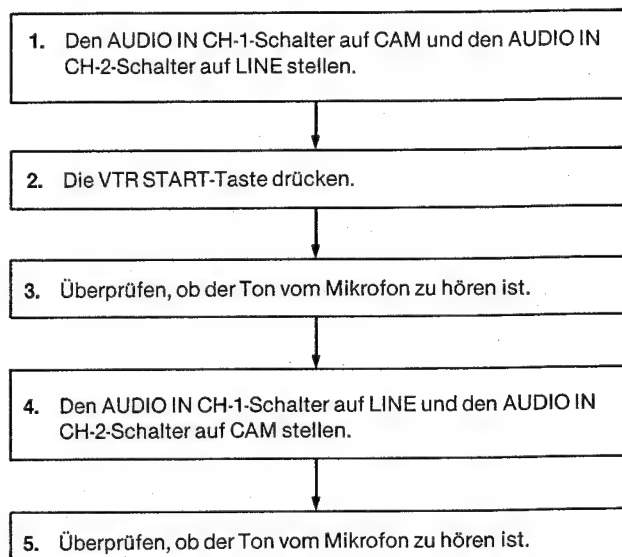
### 3-3. Überprüfen der manuellen Aufnahmepegel-einstellung



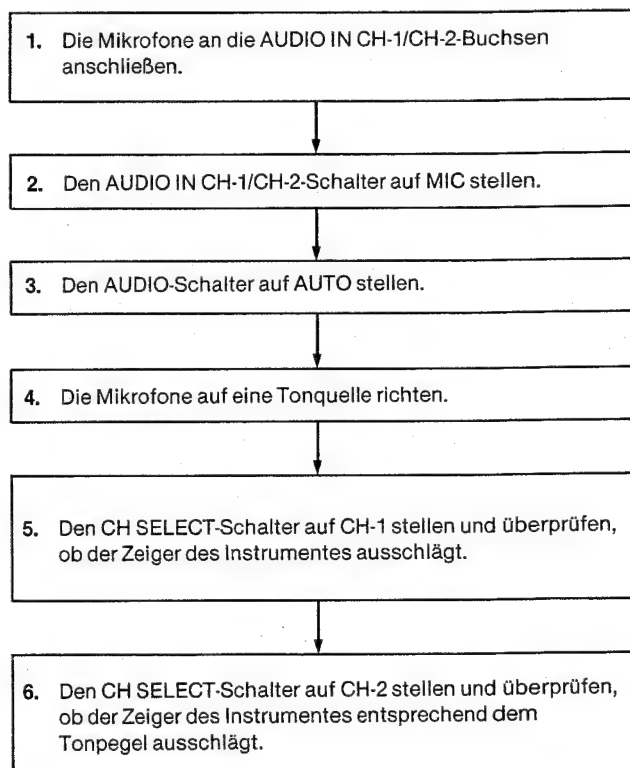
### 3-4. Überprüfen von Ohrhörer und Lautsprecher



### 3-5. Überprüfen der Audio-Hinterbandkontrolle



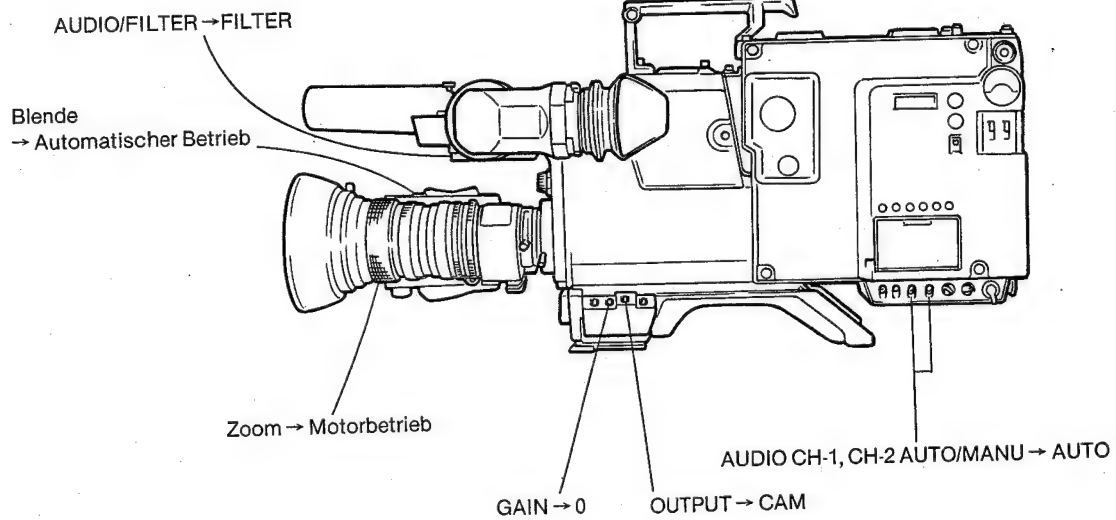
### 3-6. Überprüfen der Außenmikrofone



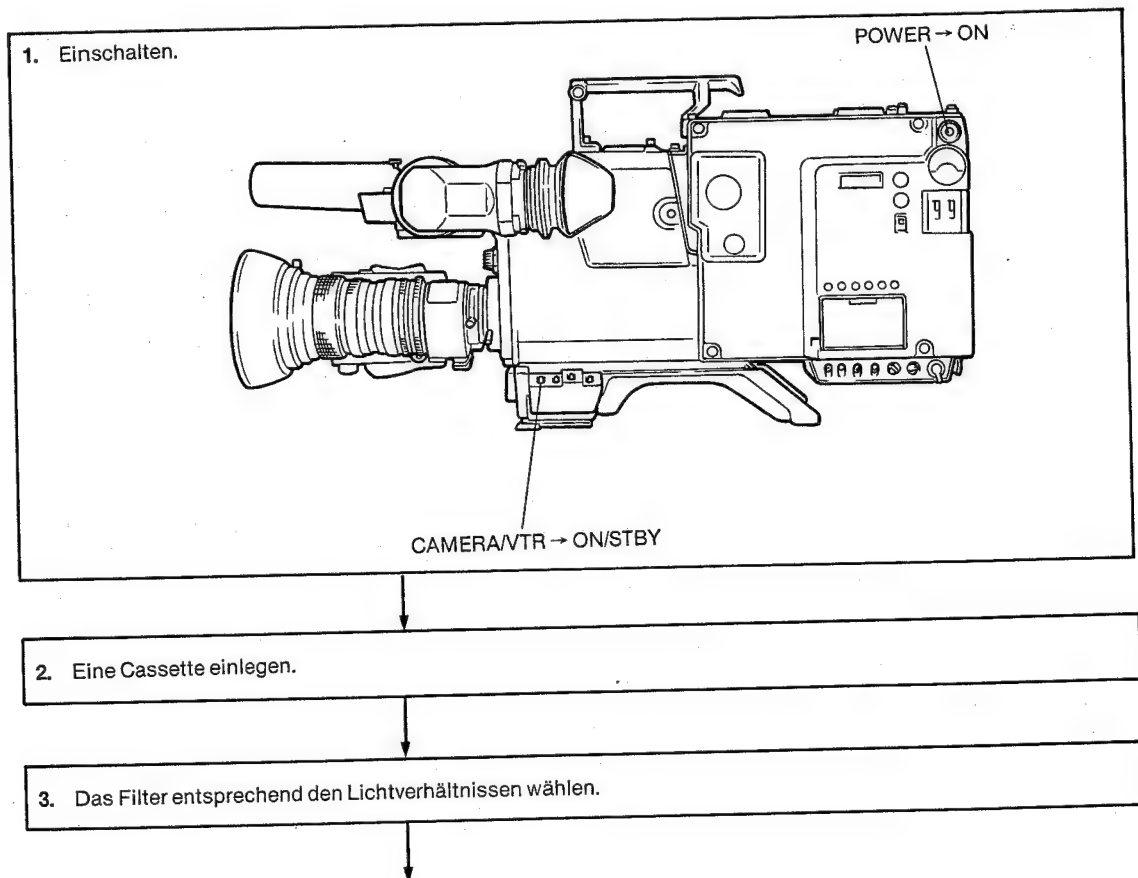
## 1-14-4. Bedienung

### 1. Vorbereitung

Überprüfen Sie vor der Inbetriebnahme, daß die Schalter wie unten gezeigt eingestellt sind.



### 2. Aufnahme



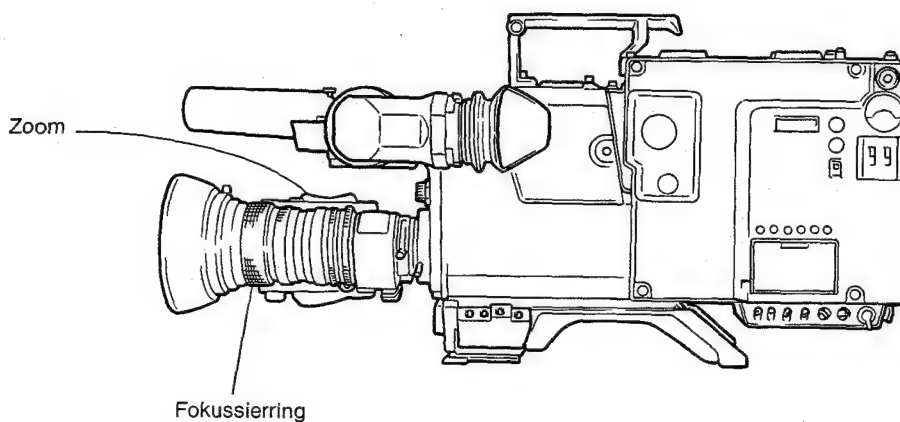
4. Den Weiß- und Schwarzabgleich ausführen.  
**Wenn der Weiß- und Schwarzabgleichwert gespeichert ist,**  
 den WHITE BAL-Schalter auf A oder B stellen.

**Wenn kein Weiß- und Schwarzabgleichwert gespeichert ist, aber unmittelbar mit der Aufnahme begonnen werden soll,**  
 den WHITE BAL-Schalter auf PRESET und den AUTO W/B BAL-Schalter auf BLK stellen. Man erhält dann einen Weiß- und Schwarzabgleich für 3200°K.

**Durchführung des Weiß- und Schwarzabgleichs**

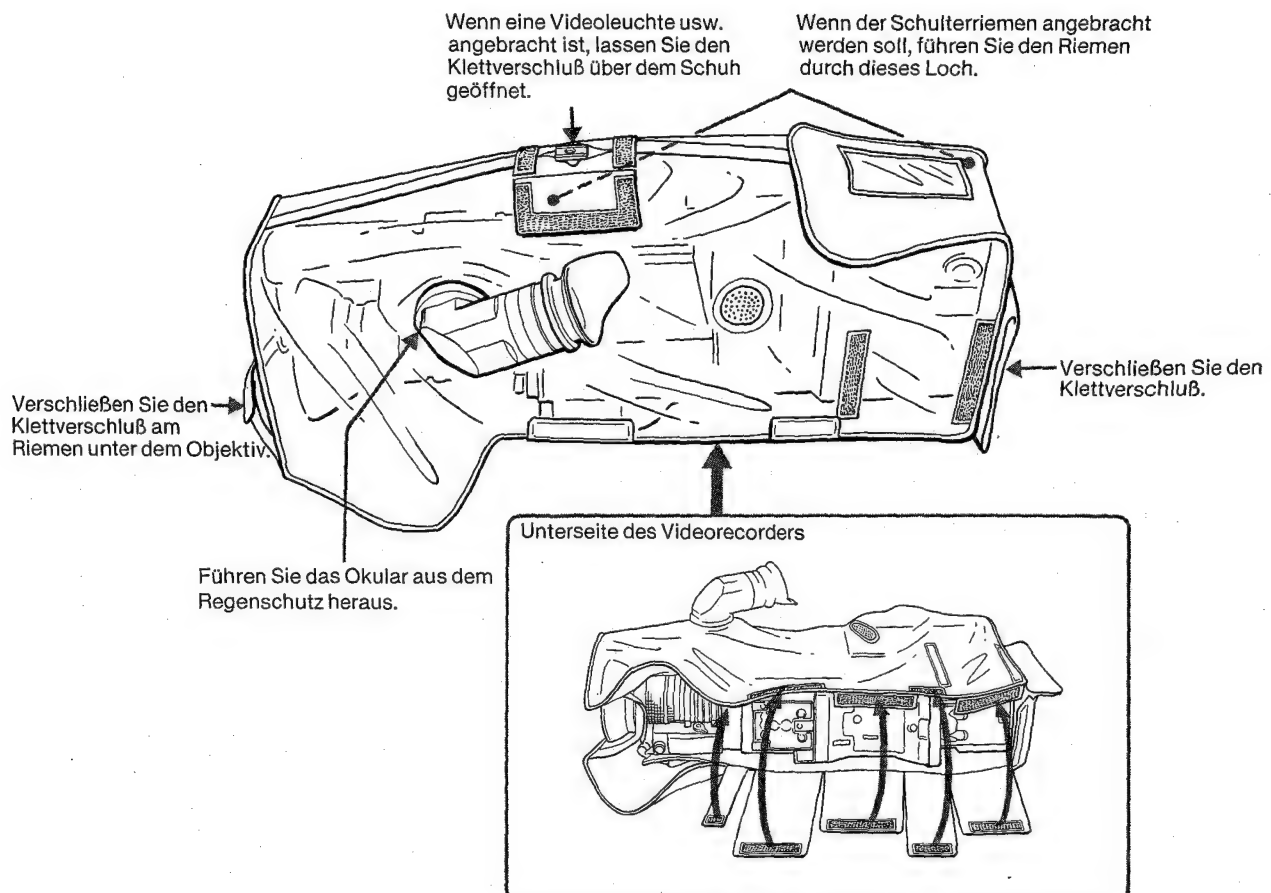
- 1) Den WHITE BAL-Schalter auf A oder B stellen.
  - 2) Zu einem weißen Gegenstand vorzoomen.
  - 3) Den AUTO W/B BAL-Schalter auf BLK stellen.  
 Sobald die W/B CENT-Anzeige aufleuchtet, und BLACK: OK erscheint, ist der Weißabgleich ausgeführt worden.
  - 4) Den AUTO W/B BAL-Schalter auf WHT stellen und überprüfen, ob die W/B CENT-Anzeige leuchtet und WHITE: OK erscheint.
- Genaueres zum Weiß- und Schwarzabgleich kann im Abschnitt „1-6. Einstellungen“ entnommen werden.

5. Die Kamera auf das Motiv richten, dann scharfstellen und das Zoom wunschgemäß einstellen.



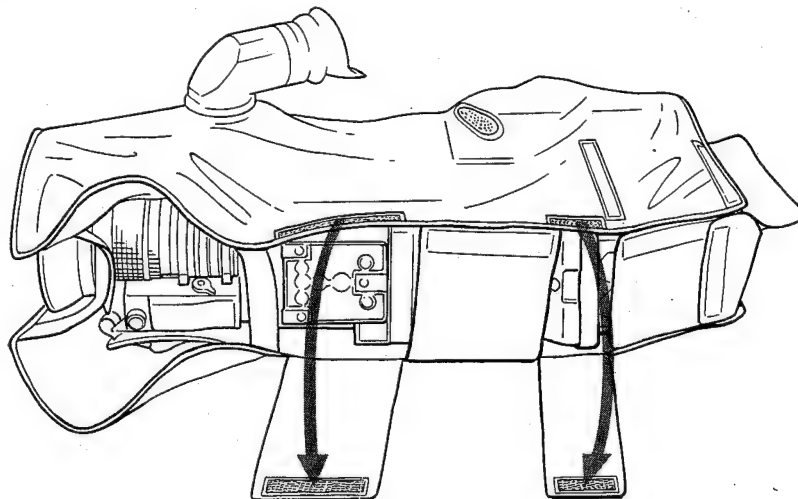
## 1-14-6. Verwendung des Regenschutzes

### Schutz des Betacam-Systems BVW-105P



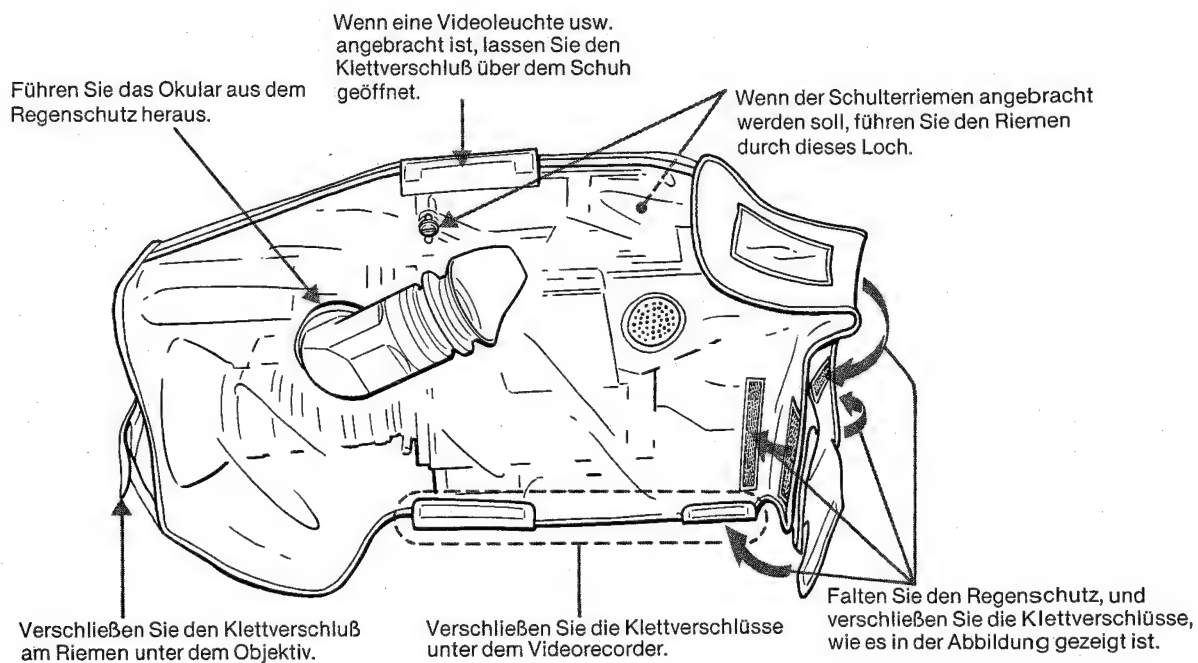
### Anbringen des regengeschützten Betacam-Systems BVW-105P auf einem Stativadapter

Wie in der Abbildung gezeigt, lassen Sie die Klettverschlüsse unter dem Videorecorder geöffnet.



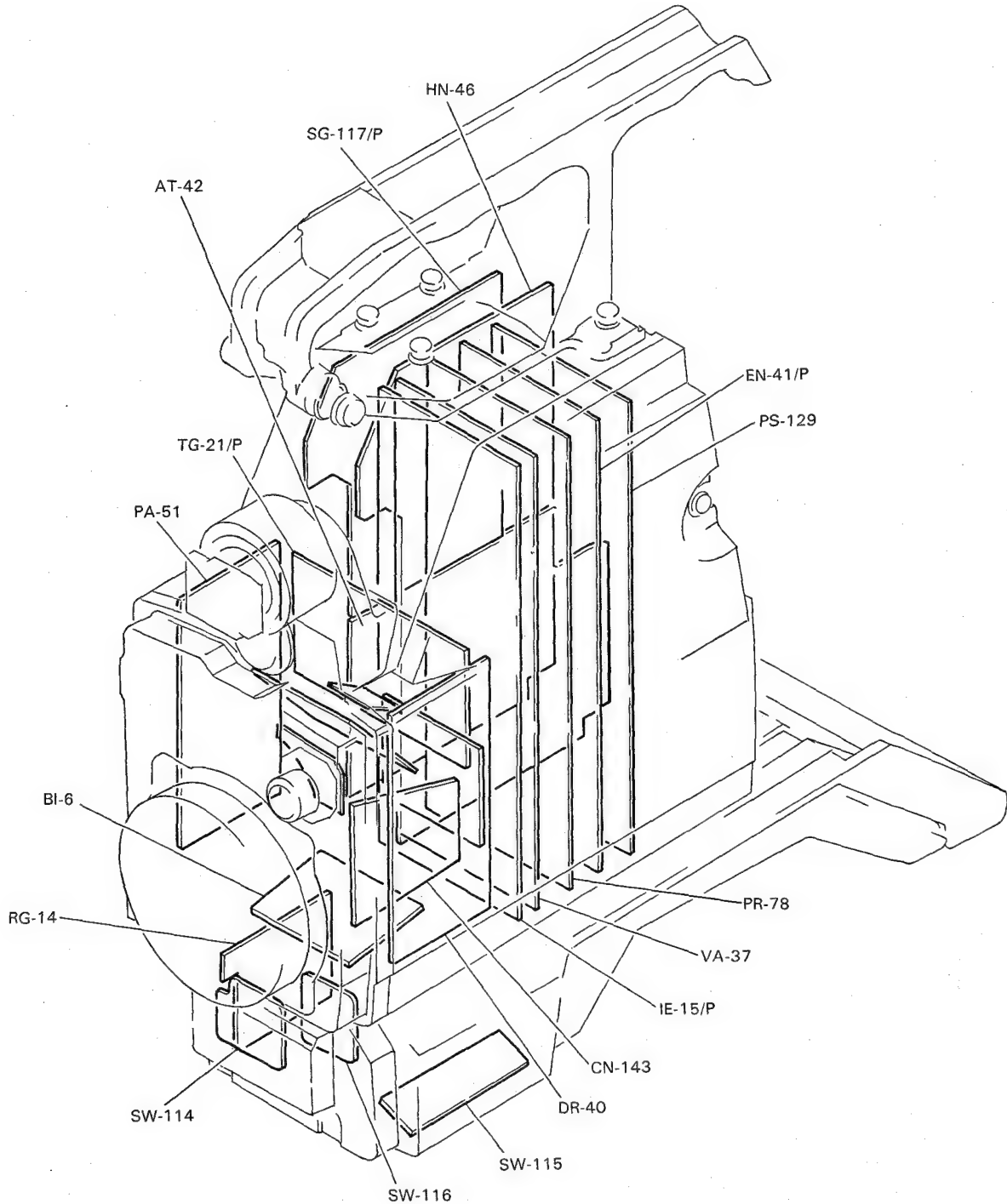
Wenn das Betacam-System auf dem Stativ-Adapter angebracht ist, verschließen Sie die Klettverschlüsse.

### Verwendung des Regenschutzes bei am Stativ-Adapter CA-3 angebrachten Betacam-System BVP-5P



## SECTION 2 DESCRIPTION

### 2-1. BOARD LAYOUT



## 2-2. CONNECTORS

### 2-2-1. Connections

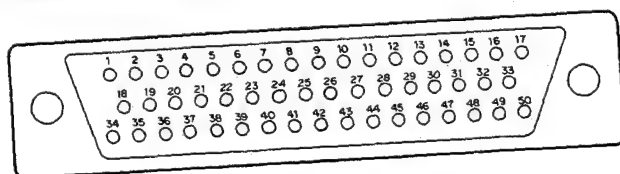
When cable with connectors are set to the respective connectors on service, the specified or equivalent connectors with cables, or the specified cable assemblies should be used, these are listed as follows.

Connector function	Parts No. and name of connector with code
TEST OUT (BNC)	1-560-069-11 PLUG, BNC
LENS (12P, FEMALE)	1-562-356-11 PLUG, 12P MALE
VF (20P, FEMALE)	1-558-609-11 CABLE SET ROUND TYPE (M)

### 2-2-2. Connector Signals

The main connector input/output signals as follows:


#### 50PIN CONNECTOR



(EXTERNAL SIDE)

PIN No.	SIGNAL	SPECIFICATION
1	GENLOCK IN (X)	VBS SIGNAL 1 Vp-p Zi = 1k $\Omega$
2	GENLOCK IN (G)	
3	+8.8V OUT	+8.8V
4	-5V OUT	-5V
5	UNREG (GND)	GND for UNREG
6	UNREG (GND)	
7	R VIDEO OUT	Zo = 75 $\Omega$ 0.7 Vp-p
8	G VIDEO OUT	
9	B VIDEO OUT	
10	RGB (GND)	GND for R, G, B VIDEO
11	(Spare)	
12	(Spare)	
13	(Spare)	
14	SD IN/OUT	Serial data for camera control



PIN No.	SIGNAL	SPECIFICATION
15	MIC OUT (G)	$Z_o \leq 600 \Omega$ -60 dBm balanced
16	MIC OUT (X)	
17	MIC OUT (Y)	
18	RET VIDEO IN (X)	
19	RET VIDEO IN (G)	
20	ZEBRA/AUDIO IN	AUDIO $Z_i \geq 1 k\Omega$
21	(Spare)	
22	TAPE IND 1 IN	ON: +4.5V OFF: GND or OPEN
23	TAPE IND 2 IN	
24	REC ALARM IN	ON: +5V OFF: +2.5V or 0V $Z_i \geq 20 k\Omega$
25	BATT IND IN	ON: +5V OFF: 0V or OPEN $Z_i = 300 \Omega$
26	PB REF IN	PB: +4.5V CAM: 0V or OPEN
27	VTR START/STOP OUT	START: +5V STOP: 0V or OPEN $Z_o \leq 10 k\Omega$
28	(Spare)	
29	R-Y VIDEO OUT (X)	$Z_o = 75 \Omega$ 0.7 Vp-p
30	B-Y VIDEO OUT (G)	
31	AUDIO CONT OUT	0V (0dB) ~ 7V (-20 dB)
32	VTR SAVE OUT	SAVE: +4.5 V STAND BY: 0V $Z_o \leq 10 k\Omega$
33	AUDIO MONITOR IN	No connection
34	SYNC (VTR) OUT	 5 Vp-p $Z_o \leq 100 \Omega$
35	(Spare)	
36	SHUT CLOSE IN	No connection
37	CF OUT	Color framing
38	RET VIDEO EN OUT	ENABLE: 0V DISABLE: +5V or OPEN
39	UNREG IN	+10.6 V ~ +17V
40	UNREG IN	
41	Y VIDEO OUT (X)	$Z_o = 75 \Omega$ 1.0 Vp-p
42	Y VIDEO OUT (G)	
43	VBS OUT (X)	VBS SIGNAL 1 Vp-p $Z_o = 75 \Omega$
44	VBS OUT (G)	
45	(Spare)	
46	(Spare)	
47	(Spare)	
48	(Spare)	
49	B-Y VIDEO OUT (X)	$Z_o = 75 \Omega$ 0.7 Vp-p
50	B-Y VIDEO OUT (G)	

## 2. DESCRIPTION



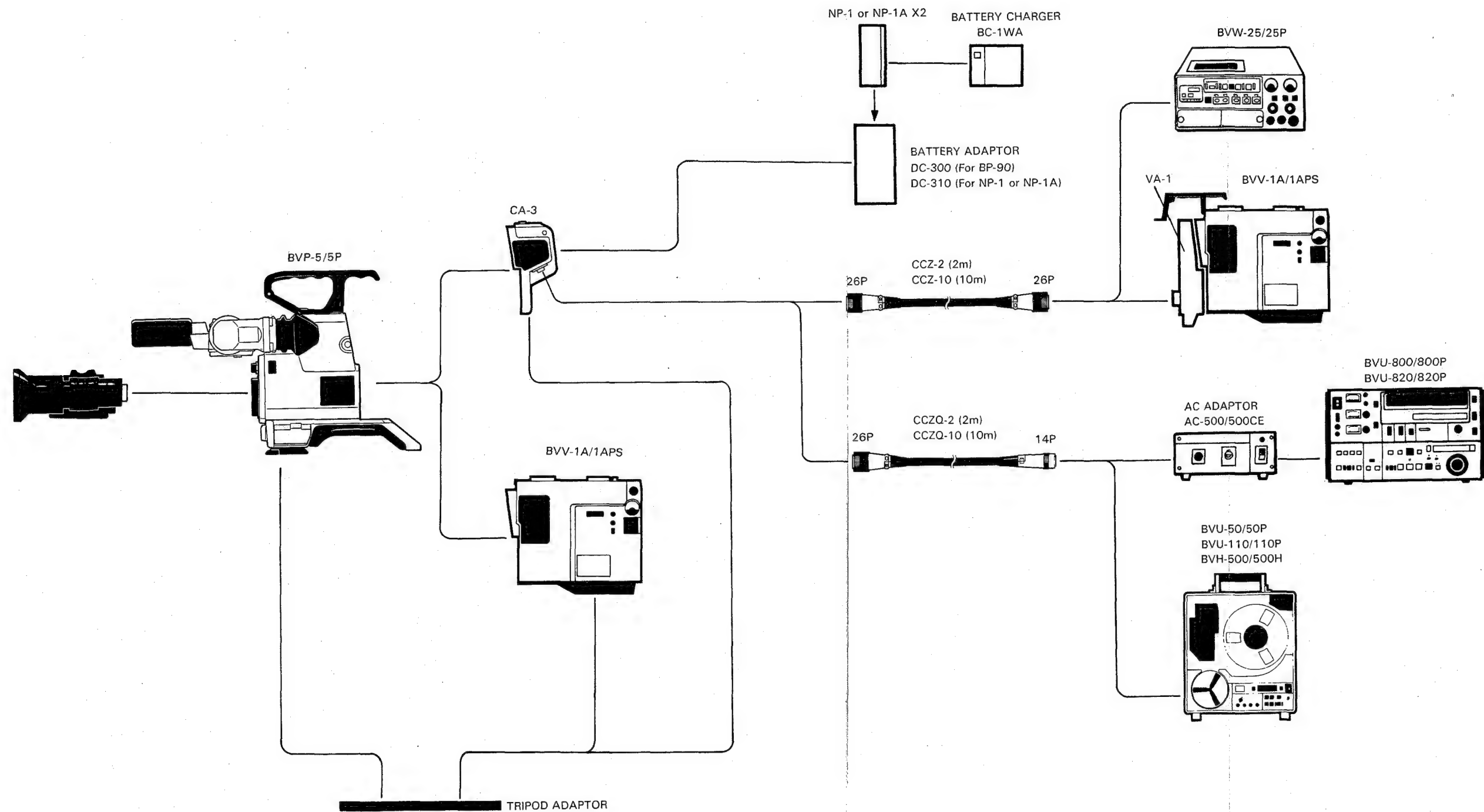
## 2. DESCRIPTION

## 2. DESCRIPTION



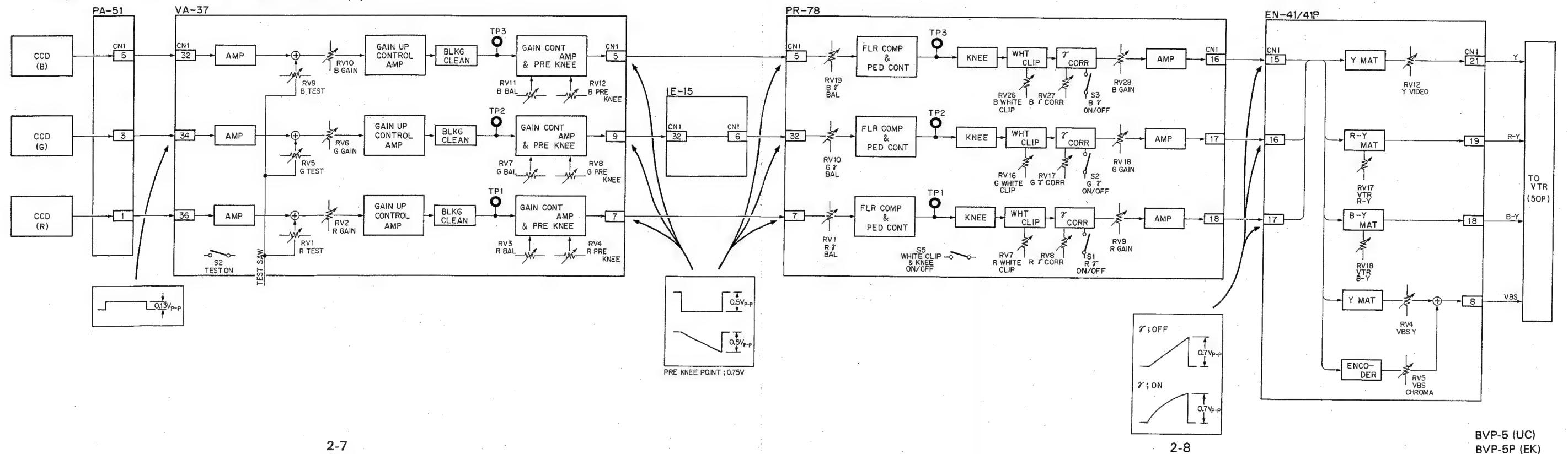
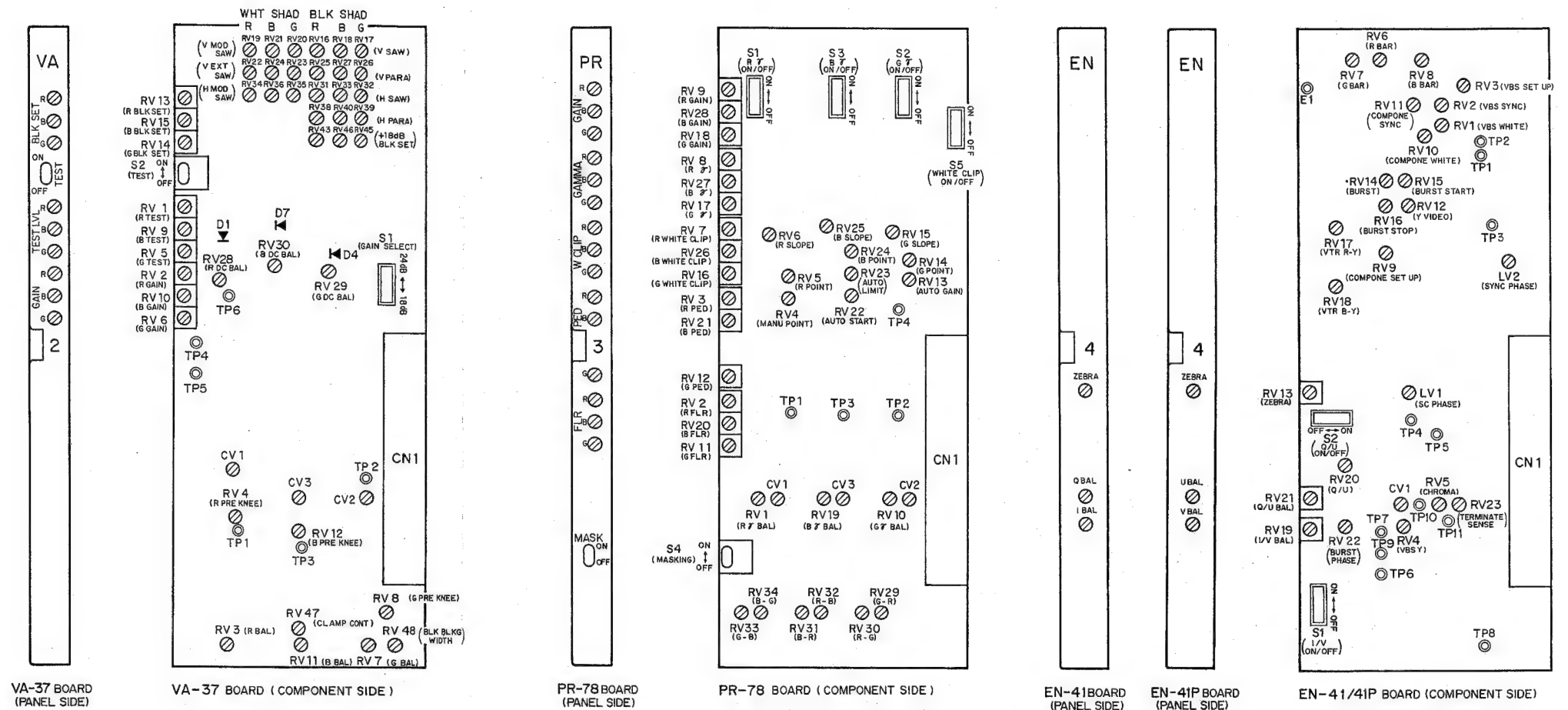
## 2. DESCRIPTION

### 2-3. System Expansion



## 2-4. LEVEL CHECK SHEET

- Adjust the iris control so that the video level at CN1-34/VA-37 board is  $0.13 \pm 0.01 V_{p-p}$ .
- Adjust the RV6 (G GAIN)/VA-37 board so that the video level at CN1-32/PR-78 board is  $0.5 \pm 0.01 V_{p-p}$ .
- Adjust the RV2 (R GAIN)/VA-37 board so that the video level at CN1-7/PR-78 board is  $0.5 \pm 0.01 V_{p-p}$ .
- Adjust the RV10 (B GAIN)/VA-37 board so that the video level at CN1-5/PR-78 board is  $0.5 \pm 0.01 V_{p-p}$ .
- Set the S1 (TEST ON) to "ON".
- Adjust the RV5 (G TEST)/VA-37 board so that the video level at CN1-32/PR-78 board is  $0.5 \pm 0.01 V_{p-p}$ .
- Adjust the RV1 (R TEST)/VA-37 board so that the video level at CN1-7/PR-78 board is  $0.5 \pm 0.01 V_{p-p}$ .
- Adjust the RV9 (B TEST)/VA-37 board so that the video level at CN1-5/PR-78 board is  $0.5 \pm 0.01 V_{p-p}$ .
- Adjust the RV10 (G  $\gamma$  BAL)/PR-78 board for such a position that the white peak level at CN1-17/PR-78 board does not change while setting S2 (G  $\gamma$  ON/OFF)/PR-78 board at ON or OFF.
- Adjust the RV1 (R  $\gamma$  BAL)/PR-78 board for such a position that the white peak level at CN1-18/PR-78 board does not change while setting S1 (R  $\gamma$  ON/OFF)/PR-78 board at ON or OFF.
- Adjust the RV19 (B  $\gamma$  BAL)/PR-78 board for such a position that the white peak level at CN1-16/PR-78 board does not change while setting S3 (B  $\gamma$  ON/OFF)/PR-78 board at ON or OFF.
- Adjust the RV18 (G GAIN)/PR-78 board so that the video level at CN1-16/EN-41 board is  $0.7 \pm 0.01 V_{p-p}$ .
- Adjust the RV9 (R GAIN)/PR-78 board so that the video level at CN1-17/EN-41 board is  $0.7 \pm 0.01 V_{p-p}$ .
- Adjust the RV28 (B GAIN)/PR-78 board so that the video level at CN1-15/EN-41 board is  $0.7 \pm 0.01 V_{p-p}$ .



## 2-5. CIRCUIT DESCRIPTION

### ○ CCD CONTROL SYSTEM (TG-21/21P, DR-40, BI-6, PA-51 boards)

- TG-21/21P board  
It sends the pulse for driving the CCD to DR-40 board and the pulse for sampling the video signal output from the CCD to PA-51 board. Driving pulse synchronizes with the synchronizing signal sent from SG-117/117P board.  
14 MHz counted down from 28 MHz is also supplied to SG-117/117P board.

- DR-40 board  
It converts the driving pulse sent from TG-21/21P board so as to drive the CCD directly. Converted pulse is sent to BI-6 board and transmitted to the CCD.

- BI-6 board  
It mounts the CCD. Driving pulse and DC voltage for control are added to the CCD on the board.  
The video signal output from the CCD is sent through the emitter follower to PA-51 board.

- PA-51 board  
It eliminates the pulse component of the video signal sent from BI-6 board. Then the signal processings such as the black level fixing, phase offset adjustment for resolution improvement and amplification by preamplifier are performed on the board, then the video signal is sent to VA-37 board.

### ○ VIDEO SIGNAL SYSTEM (VA-37, IE-15/15P, PR-78, EN-41/41P boards)

- VA-37 board  
It amplifies the video signal sent from PA-51 board and processes the black shading correction, gain-up control, blanking cleaning and white shading correction. It also selects the video signal or the TEST SAW signal.
- IE-15/15P board  
It generates the detail signal obtained from G and R video signal so as to improve resolution. The detail signal is sent to PR-78 board, then added to R, G and B video signals.  
G video signal is delayed by 1H, then sent to PR-78 board.
- PR-78 board  
The masking signal and detail signal are added to R, G and B video signals respectively and the flare compensation, pedestal control, knee correction, white clipping and gamma correction are performed on the board.  
Then the video signal is sent to EN-41/41P board.

- EN-41/41P board

It generates the luminance (Y) signal, color difference (B-Y, R-Y) signals and composite video (VBS) signal obtained from R, G and B video signals. It also supplies the SMPTE: NTSC (EBU: PAL) color-bar signals.

### ○ POWER SUPPLY SYSTEM (PS-129 board)

- PS-129 board  
Externally supplied unregulated DC power is sent to the switching regulator, DC to DC converter and serial regulator to generate voltages of +8.8 Vdc, +5 Vdc and -5 Vdc for the respective boards.  
It also supplies voltages for the VIEWFINDER and for CCD control.  
Besides the current to cool the CCD is controlled on the board.

### ○ SYNCHRONIZING SIGNAL SYSTEM (SG-117/117P board)

- SG-117/117P board  
It generates various synchronizing signals.  
It detects the genlock signal automatically and synchronizes with it.

### ○ AUTOMATIC CONTROL SYSTEM (AT-42, PS-129 boards)

- AT-42 board  
Microcomputer unit on AT-42 board sends to the control signal and compensation signal to appropriate boards in accordance with the selection of function switches.  
It also detects the internal temperature, position of color temperature conversion filter, PEDESTAL control and video level automatically, then compensates the video signals and displays various warnings.
- PS-129 board  
It contains the auto iris circuit and VTR-CAMERA interface circuit.  
The former detects the video level at any time and adjusts the iris control.  
The latter controls the input and output of the START/STOP control signal and warning signal between camera and VTR.

## 2-6. SWITCHES SETTING ON THE BOARD

[VA-37 board]

### •S1 (GAIN SELECT)

By setting the GAIN selector (side panel) to "18", the video output level can be raised by 18 dB or 24 dB with this switch.

In this case, be sure to perform the +18 dB Black Set Adjustment for R, G and B video signals respectively.

### •S2 (TEST)

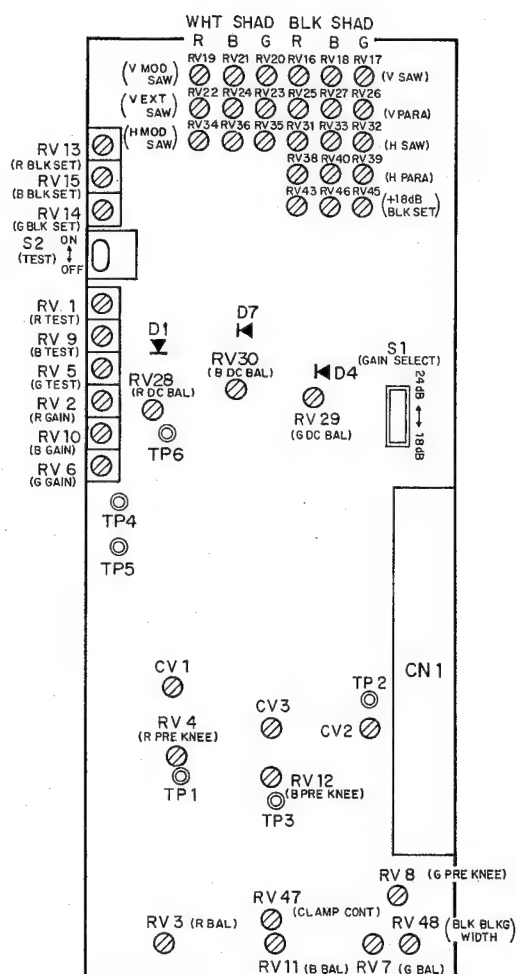
When turned on, the lens is automatically closed and the TEST SAW waveform is added to the video signal system. Normally set to "OFF".

[IE-15 board]

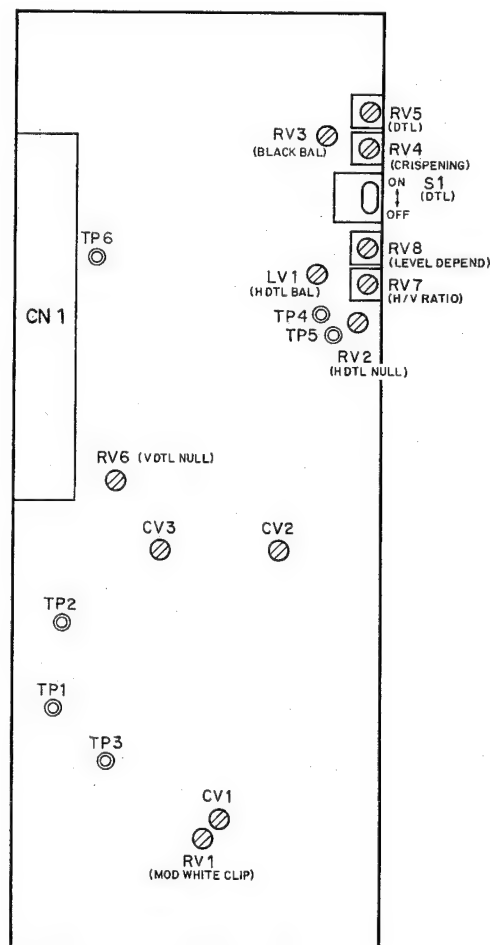
### •S1 (DTL)

Selects whether the detail signal which the IE-15 board has generated for resolution improvement should be added to the video signal or not.

Turn on to add the detail signal.



VA-37 BOARD (COMPONENT SIDE)



IE-15/15P BOARD (COMPONENT SIDE)

[PR-78 board]

• S1 (R γ) S2 (G γ) S3 (B γ)

When turned on, the gamma correction is performed so that the overall characteristic of signals between camera and monitor is " $\gamma = 1$ ". Normally set to "ON".

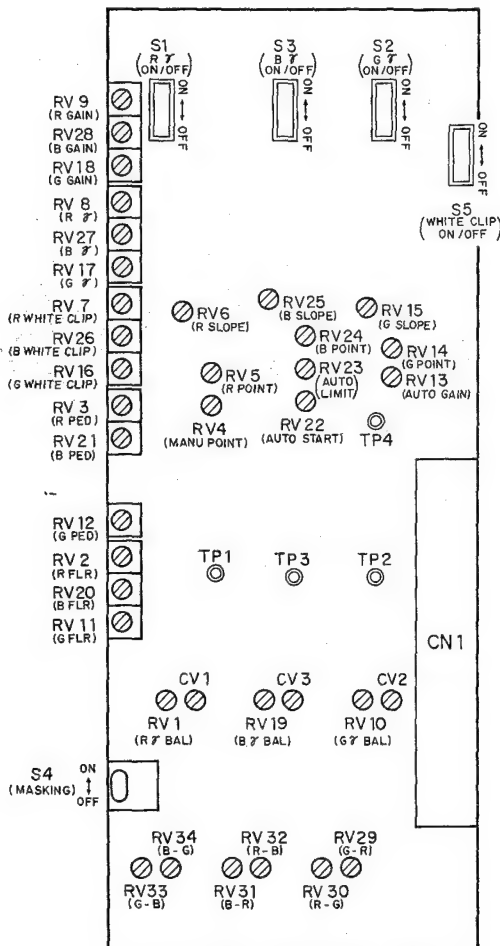
• S4 (MASKING)

Selects whether the masking signal to improve the color reproducibility should be added to the video signal system or not.

Turn on to add the masking signal.

• S5 (WHITE CLIP & KNEE)

When turned off, the white clipping and knee correction are automatically released. Use for the video signal system adjustment. Normally set to "ON".

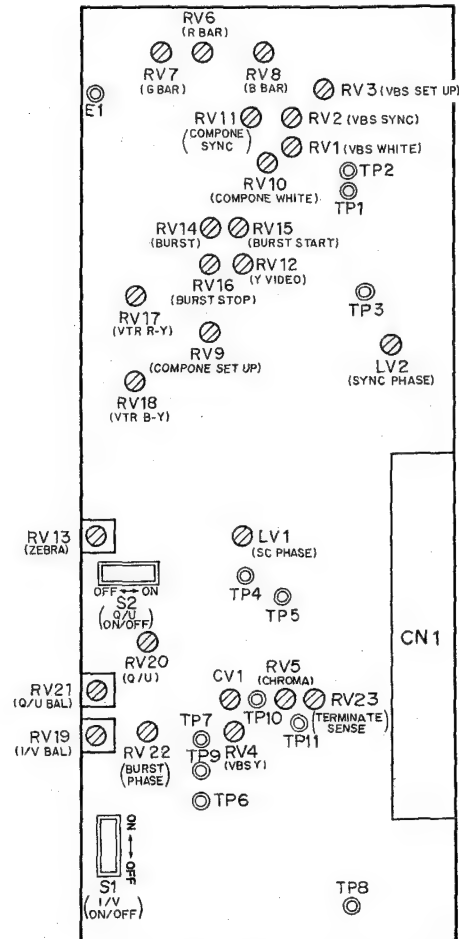


PR-78 BOARD (COMPONENT SIDE)

[EN-41 board]

• S1 (I/V) S2 (Q/U)

When turned on, the I (Q) signal is added to the encoder circuit. Use for the encoder circuit adjustment. Normally set to "ON".



EN-41/41P BOARD (COMPONENT SIDE)

## [PS-129 board]

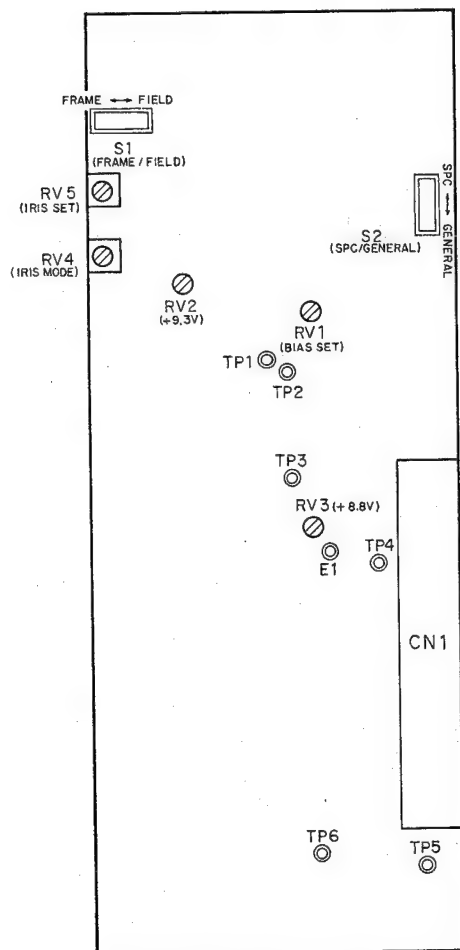
## • S1 (FIELD/FRAME)

Selects the ways of CCD picture readout; "FIELD" or "FRAME". It has been set to "FIELD" at the factory.

## • S2 (SPC/GENERAL)

Selects the modes of the REC lamp in the Viewfinder and TALLY lamp.

They operate ordinarily with the S2 switch set to "GENERAL". When set to "SPC", they operate as the W/B CENT lamp besides their ordinary functions.



PS-129 BOARD (COMPONENT SIDE)

## [SG-117 board]

## • S1 (H BLKG SELECT)

Adjusts the horizontal blanking width. It has been adjusted so as to be  $10.9 \pm 0.2\mu\text{S};\text{N}$  ( $12.05 \pm 0.25\mu\text{S};\text{P}$ ).

## • S2 (V BLKG SELECT) ... NTSC only

Adjusts the vertical blanking width. It has been set to "20 H".

## • S4 (COLOR FRAME)

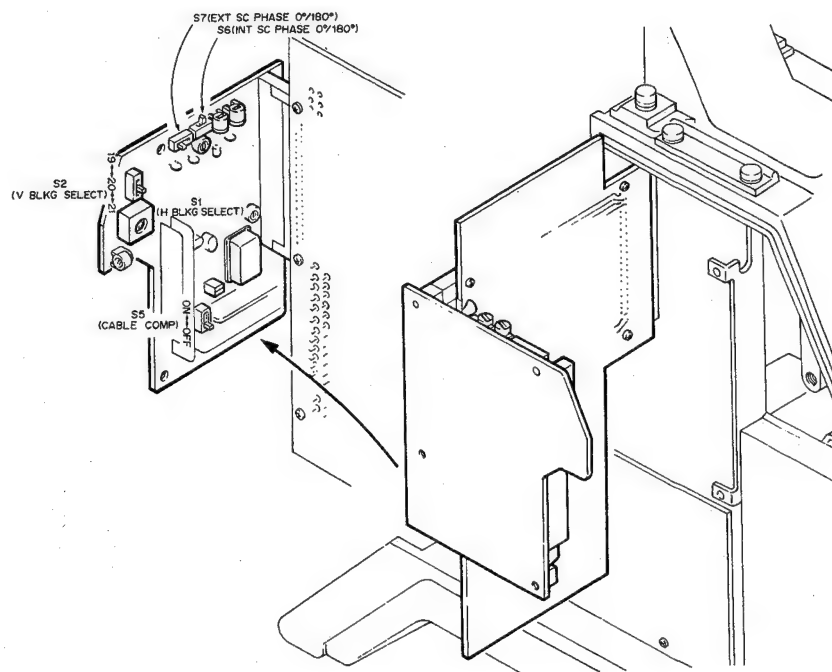
When turned on, the color framing pulse is fed from pin 37 of 50-pin connectors.

## • S5 (CABLE COMP)

When turned on, the cable length compensation is performed for the genlock signal externally supplied to camera.

• S6 (INT SC PHASE  $0^\circ/180^\circ$ )S7 (EXT SC PHASE  $0^\circ/180^\circ$ )

Adjusts the SC (subcarrier) phase for the SYNC signal. Switch over to shift the subcarrier phase  $180^\circ$ .





[AT-42 board]

•S1 (CHECK, FP INH)

**CHECK**

Setting this switch to "ON", the automatic control circuit enters the self-diagnostic mode.

(See 2-8. Self-diagnostic Function of Automatic Control System)

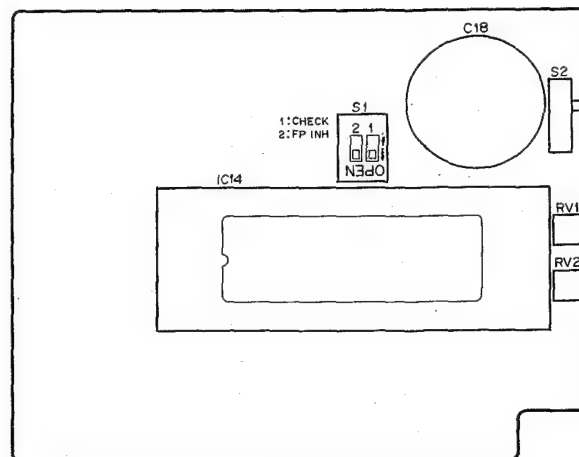
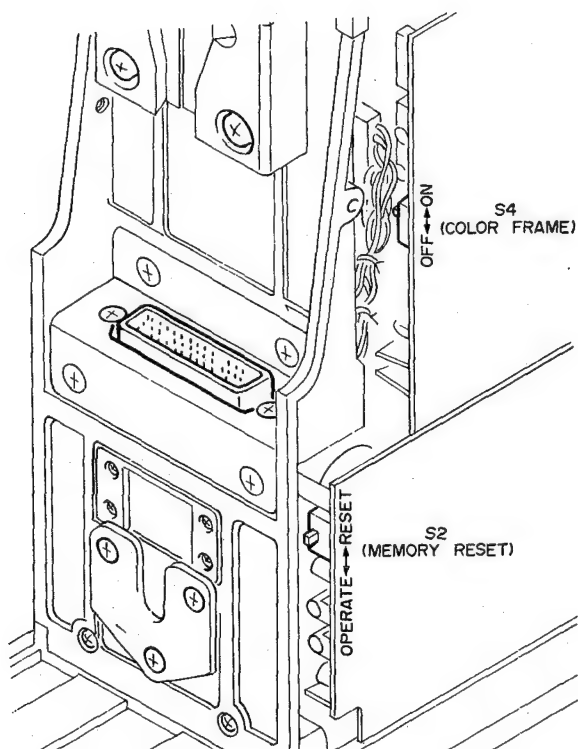
Normally set to "OFF (OPEN)".

**FP INH**

When set to "OFF (OPEN)", the values of the white balance adjusted at each filter position can be stored in the memory A and B independently. In short, up to 8 adjusted values; 4 for the memory A and 4 for the memory B can be stored. When set to "ON", only 2 adjusted values; one for A and one for B can be stored. In this case, the adjusted values will not correspond to the selection of the color temperature conversion filter. According to the selection of WHITE BAL switch (side panel), the white balance value is stored in the memory A and B or read out.

•S2 (MEMORY RESET)

By setting the CAMERA/VTR switch (side panel) to "OFF" and this switch to "RESET", the compensation data stored in the microcomputer can be reset. Normally set to "OPERATE".

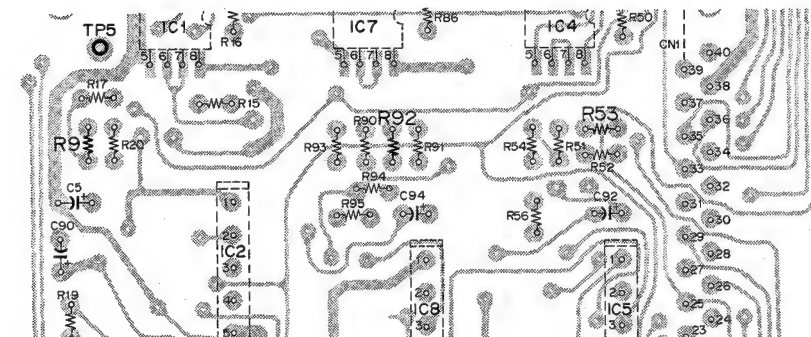


AT-42 board (COMPONENT SIDE)

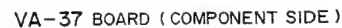
## 2. DESCRIPTION

0-9-18 dB  
0-9-24 dB  
0-12-18 dB  
0-12-24 dB

The video output level can be raised by 12 dB at the 9 position of GAIN selector (side panel).



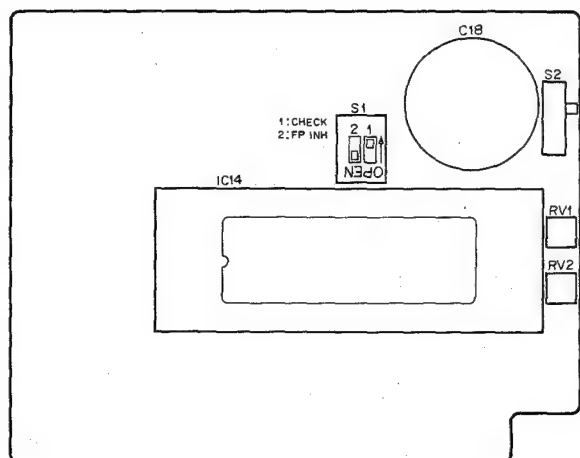
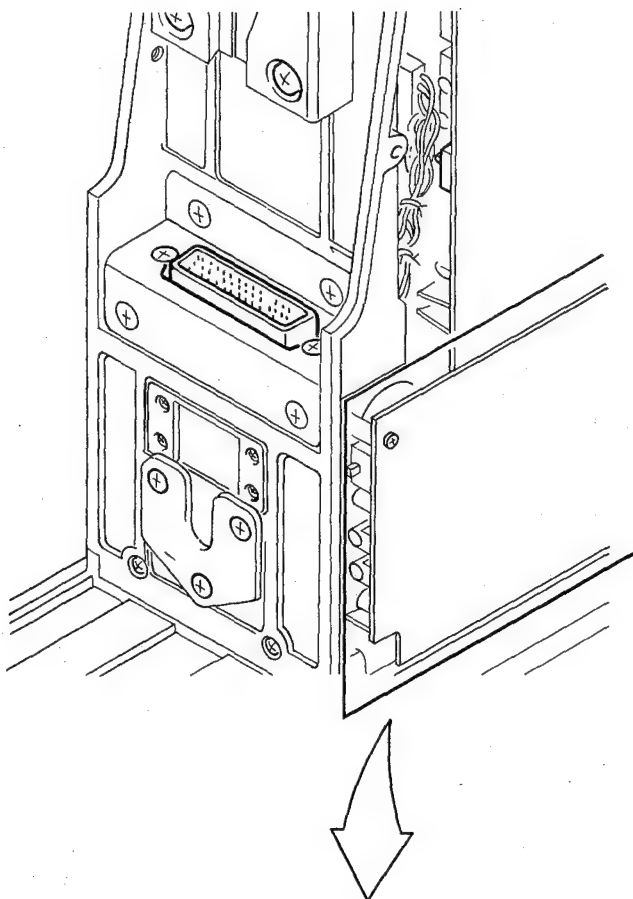
By setting the S1 (GAIN SELECT) switch on the VA-37 board to "24 dB", the video output level can be raised by 24 dB at the 18 position of GAIN selector (side panel). When the S1 switch is changed; 18 dB → 24 dB or 24 dB → 18dB, be sure to perform the +18 dB Black Set Adjustment.



## 2-8.SELF-DIAGNOSTIC FUNCTION OF AUTOMATIC CONTROL SYSTEM.

BVP-5/5P can diagnose the hardware of the automatic control system for itself by using the VF screen.

1. Set the **CHECK** switch of S1 (CHECK, FP INH)/AT-42 board to "ON".



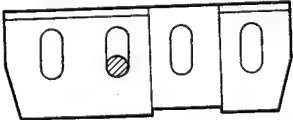

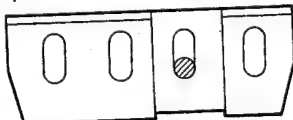
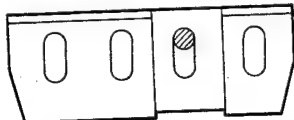
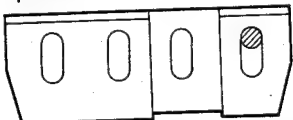
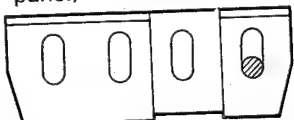
AT-42 board (COMPONENT SIDE)

2. Confirm that the following message is displayed on the VF screen.

— SELF DIAG. —  
PUSH AWB. SW.  
PROCEED TO.  
NEXT STEP

3. Set the AUTO W/B BAL switch (front panel) to "WHT" to advance the self-diagnostic mode to next step.  
Set the switches, referring to the table on the next page.
4. When "NG" is indicated, check a related circuit.
5. Set the **CHECK** switch of S1 (CHECK, FP INH)/AT-42 board to "OFF" to return to the normal operation.

STEP	Setting	VF screen	Related circuit
		<div>— SELF DIAG. — PUSH AWB. SW. PROCEED TO. NEXT STEP</div>	
1	<ul style="list-style-type: none"> <li>S2 <b>TEST</b> /VA-37 board → "ON" or</li> <li>Shoot a suitable object.</li> </ul>	<div>— SELF DIAG. — STEP 1 R.GAIN: OK PUSH AWB. SW.</div>	<ul style="list-style-type: none"> <li>AT-42 board IC9→RP3→IC10 (2/2) →IC12→ pin 25 of CN1 IC2→IC3→IC1→IC6→IC7</li> <li>VA-37 board pin 15 of CN1 →IC3</li> </ul>
		<div>— SELF DIAG. — STEP 1 B.GAIN: OK PUSH AWB. SW.</div>	<ul style="list-style-type: none"> <li>AT-42 board IC9→RP3→IC10 (2/2) →IC12→ pin 24 of CN1 IC2→IC3→IC1→IC6→IC7</li> <li>VA-37 board pin 14 of CN1 →IC9</li> </ul>
2	<ul style="list-style-type: none"> <li>Close the lens iris. (When the lens is not closed, the following message is displayed until it is closed.)</li> </ul> <div>STEP 2 LENS: NOT CLOSED</div>	<div>— SELF DIAG. — STEP 2 G.BLK.: OK PUSH AWB. SW.</div>	<ul style="list-style-type: none"> <li>AT-42 board IC9→RP3→IC10 (2/2) →IC12→ pin 23 of CN1 IC2→IC3→IC1→IC6→IC7</li> <li>VA-37 board pin 13 of CN1 →Q35→Q2</li> </ul>
		<div>— SELF DIAG. — STEP 2 R.BLK.: OK PUSH AWB. SW.</div>	<ul style="list-style-type: none"> <li>AT-42 board IC9→RP3→IC10 (2/2) →IC12→ pin 21 of CN1 IC2→IC3→IC1→IC6→IC7</li> <li>VA-37 board pin 11 of CN1 →Q37→Q24</li> </ul>
		<div>— SELF DIAG. — STEP 2 B.BLK.: OK PUSH AWB. SW.</div>	<ul style="list-style-type: none"> <li>AT-42 board IC9→RP3→IC10 (2/2) →IC12→ pin 22 of CN1 IC2→IC3→IC1→IC6→IC7</li> <li>VA-37 board pin 12 of CN1 →Q36→Q14</li> </ul>
3	<ul style="list-style-type: none"> <li>Close the lens iris. (When the lens is not closed, the following message is displayed until it is closed.)</li> </ul> <div>STEP 3 LENS: NOT CLOSED</div>	<div>— SELF DIAG. — STEP 3 R.PED.: OK PUSH AWB. SW.</div>	<ul style="list-style-type: none"> <li>AT-42 board IC9→RP3→IC10 (2/2) →IC12→ pin 13 of CN1 IC2→IC3→IC1→IC6→IC7</li> <li>PR-78 board pin 10 of CN1 →IC2</li> </ul>
		<div>— SELF DIAG. — STEP 3 B.PED.: OK PUSH AWB. SW.</div>	<ul style="list-style-type: none"> <li>AT-42 board IC9→RP3→IC10 (2/2) →IC12→ pin 12 of CN1 IC2→IC3→IC1→IC6→IC7</li> <li>PR-78 board pin 9 of CN1 →IC11</li> </ul>

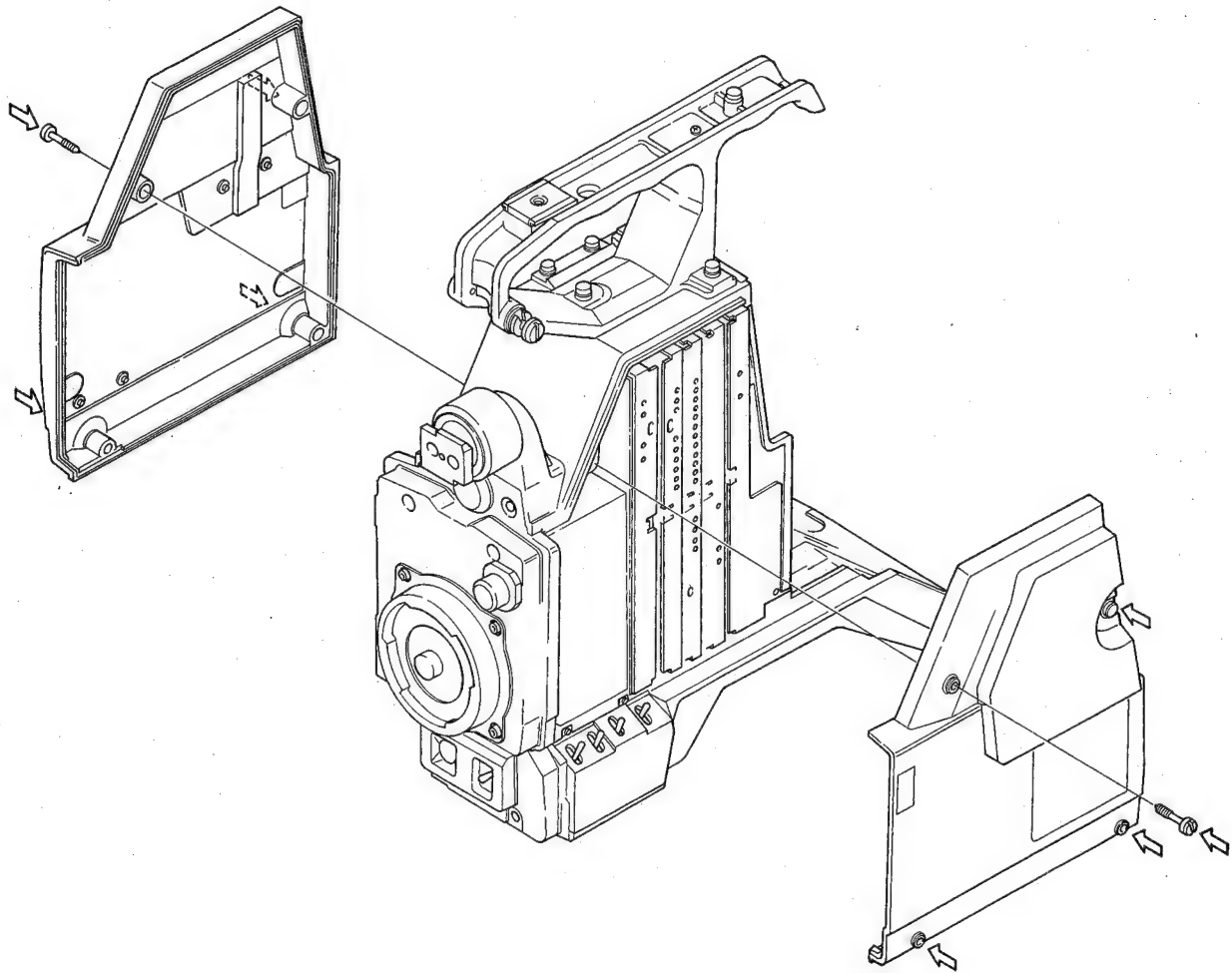
STEP	Setting	VF screen	Related circuit
4		<p>— SELF DIAG. — STEP 4 AUTO IND OK? PUSH AWB. SW.</p> <p>• If the W/B CENT indicator in the VF lights up, this function is normal (OK), If not, NG.</p>	<ul style="list-style-type: none"> <li>• AT-42 board Q3→pin 32 of CN1</li> <li>• Frame pin 7 of CN101</li> <li>• LP-28 board (Viewfinder) pin 1 of CN2 →D7</li> </ul>
	<ul style="list-style-type: none"> <li>• GAIN selector (side panel) →"18"</li> </ul> 	<p>— SELF DIAG. — STEP 5 SET 18DB: OK PUSH AWB. SW.</p>	<ul style="list-style-type: none"> <li>• SW-115 board S2</li> <li>• HN-46 board pin 1 of CN16</li> <li>• AT-42 board pin 20 of CN1</li> <li>• IE-15 board pin 31 of CN1</li> <li>• VA-37 board pin 8 of CN1</li> </ul>
5	<ul style="list-style-type: none"> <li>• GAIN selector (side panel) →"9"</li> </ul> 	<p>— SELF DIAG. — STEP 5 SET 9DB: OK PUSH AWB. SW.</p>	<ul style="list-style-type: none"> <li>• SW-115 board S2</li> <li>• HN-46 board pin 2 of CN16</li> <li>• AT-42 board pin 19 of CN1</li> <li>• IE-15 board pin 29 of CN1</li> <li>• VA-37 board pin 6 of CN1</li> </ul>
	<ul style="list-style-type: none"> <li>• OUTPUT/DCC selector (side panel) →"BARS/OFF"</li> </ul> 	<p>— SELF DIAG. — STEP 5 SET BARS: OK PUSH AWB. SW.</p>	<ul style="list-style-type: none"> <li>• SW-115 board S3</li> <li>• HN-46 board pin 3 of CN24</li> <li>• AT-42 board pin 7 of CN1</li> <li>• EN-41 board pin 24 of CN1</li> <li>• SG-117 board pin 19 of CN1</li> </ul>
	<ul style="list-style-type: none"> <li>• S2 TEST /VA-37 board →"ON"</li> </ul>	<p>— SELF DIAG. — STEP 5 SET TEST: OK PUSH AWB. SW.</p>	<ul style="list-style-type: none"> <li>• VA-37 board S2→pin 30 of CN1</li> <li>• AT-42 board pin 29 of CN1</li> <li>• SG-117 board pin 10 of CN1</li> <li>• DR-40 board pin 5 of CN1</li> </ul>
	<ul style="list-style-type: none"> <li>• OUTPUT/DCC selector (side panel) →"CAM/ON"</li> </ul> 	<p>— SELF DIAG. — STEP 5 SET DCC: OK PUSH AWB. SW.</p>	<ul style="list-style-type: none"> <li>• SW-115 board S3</li> <li>• HN-46 board pin 2 of CN24</li> <li>• AT-42 board pin 15 of CN1</li> <li>• PR-78 board pin 14 of CN1</li> </ul>
	<ul style="list-style-type: none"> <li>• WHITE BAL selector (side panel) →"B"</li> </ul> 	<p>— SELF DIAG. — STEP 5 SET A/B: OK PUSH AWB. SW.</p>	<ul style="list-style-type: none"> <li>• SW-115 board S4</li> <li>• HN-46 board pin 3 of CN16</li> <li>• AT-42 board pin 18 of CN1</li> </ul>
	<ul style="list-style-type: none"> <li>• WHITE BAL selector (side panel) →"PRESET"</li> </ul> 	<p>— SELF DIAG. — STEP 5 SET W.PST: OK PUSH AWB. SW.</p>	<ul style="list-style-type: none"> <li>• SW-115 board S4</li> <li>• HN-46 board pin 4 of CN16</li> <li>• AT-42 board pin 17 of CN1</li> </ul>

## SECTION 3

### REPLACEMENT OF MAIN PARTS

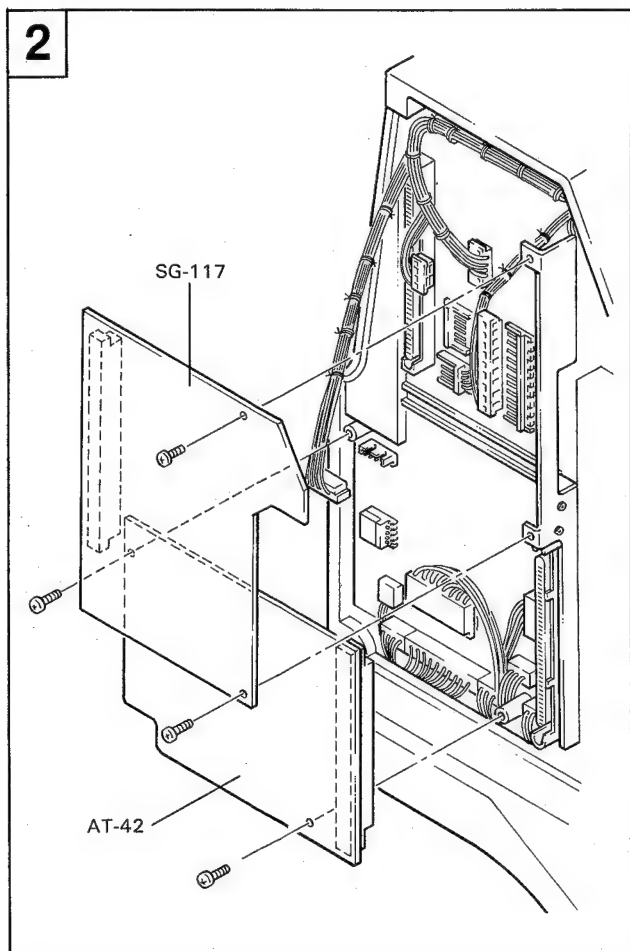
#### 3-1. CABINET REMOVAL

Remove the eight screws and remove the side panels.

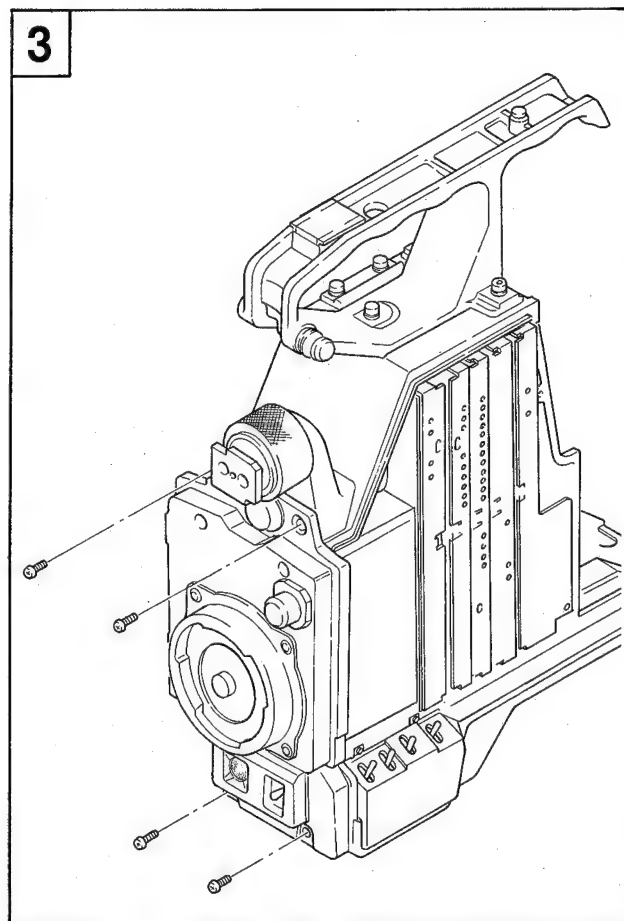


### 3-2. REPLACEMENT OF CCD UNIT

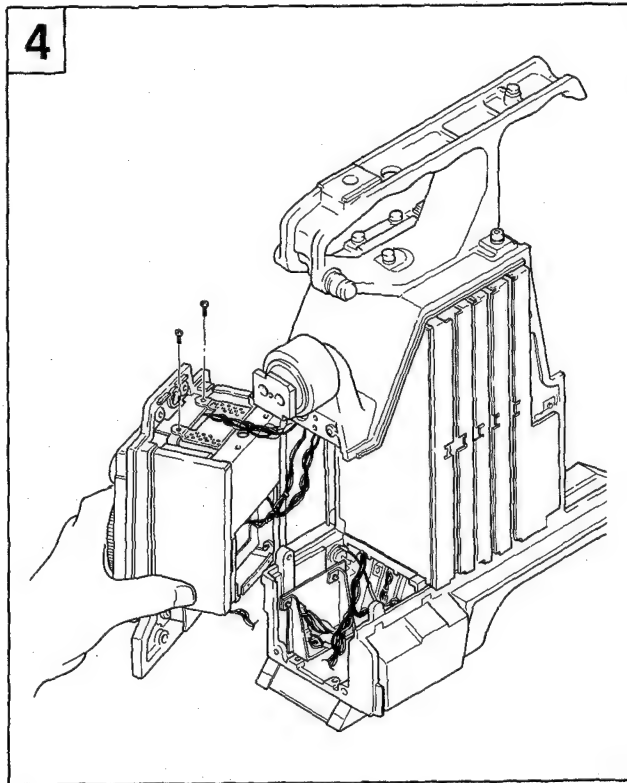
1. Remove the left and right side panels referring to 3-1.
2. Remove the four screws and remove the AT-42 and SG-117 boards.  
Remove the connectors of CN21, CN22, CN23 and CN12 on the HN-46 board.



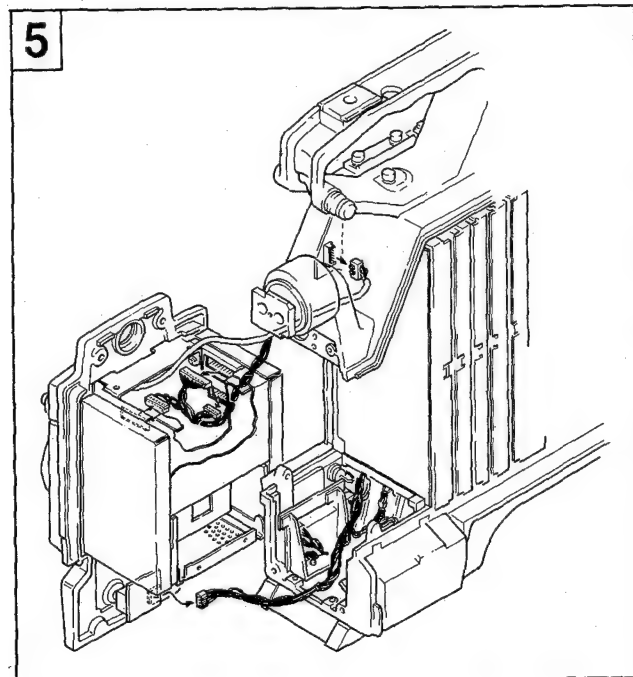
3. Remove the four screws and remove the front block from BVP-5.



4. Remove the two screws and remove the shielding board as shown in the figure below.

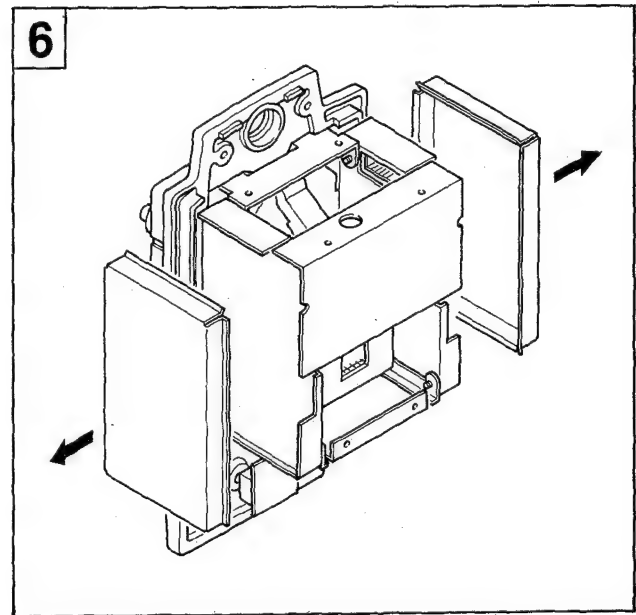


5. Disconnect CN25 connector from the HN-46 board, CN1 connector from the DR-40 board, and CN1, CN2 connectors from the PA-51 board. Disconnect CN1 connector from SW-115 and CN1 connector from SW-116.

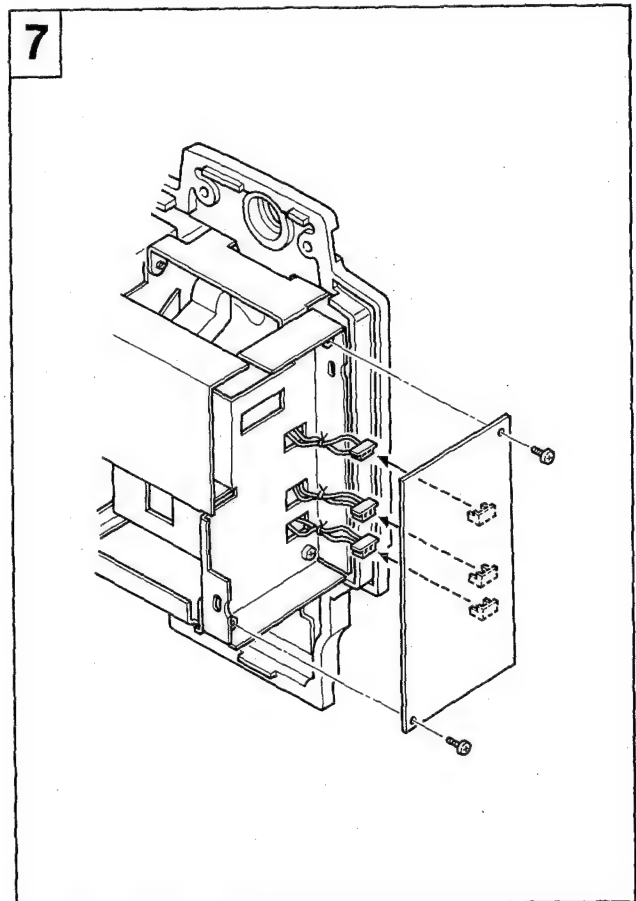


BVP-5 (UC)  
BVP-5P (EK)

6. Remove each cover of the shielding cases.

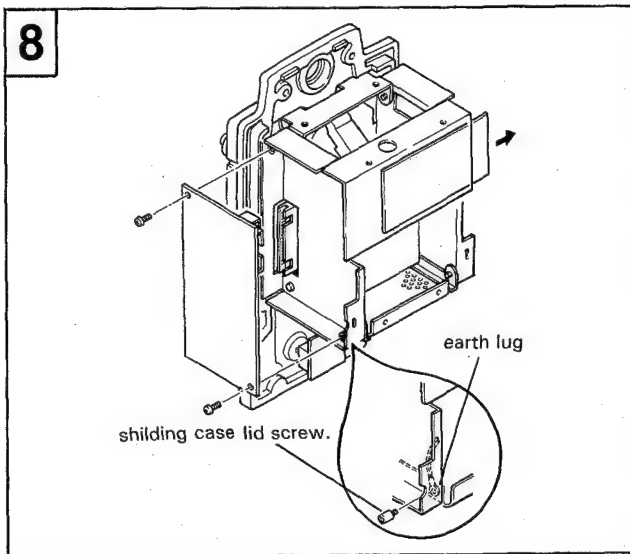


7. Remove the two screws and extract the shielding case for PA-51 board. Disconnect CN5, CN4 and CN6 connectors from the PA-51 board.

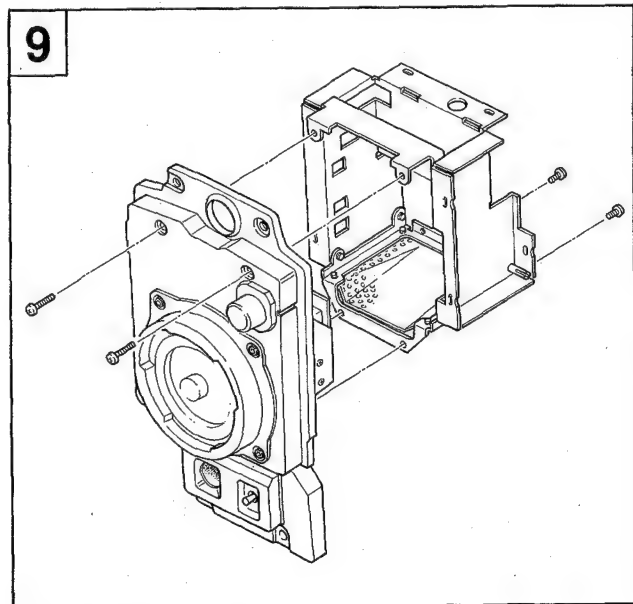




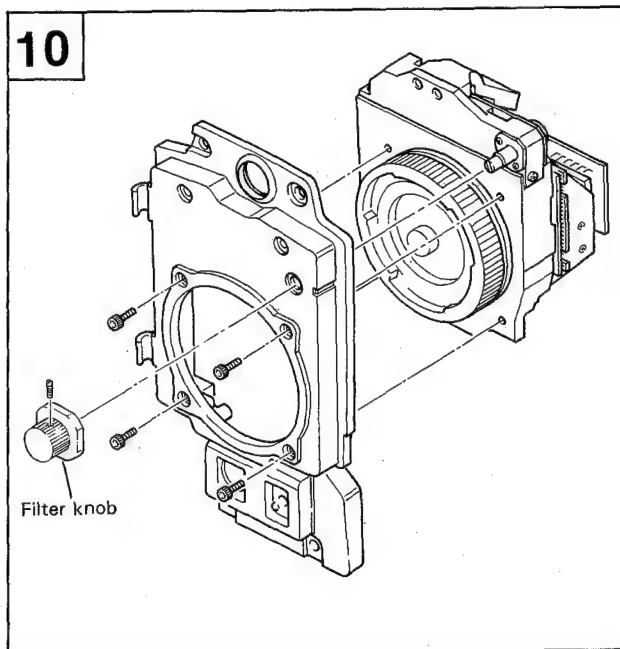
8. Extract the TG-21 board in the direction of the arrow. Remove the two screws and the DR-40 board. Remove the shielding case lid screw and remove the earth lug.



9. Remove the shielding case (main). Remove the four screws from the front panel, two on front side and two on rear side.



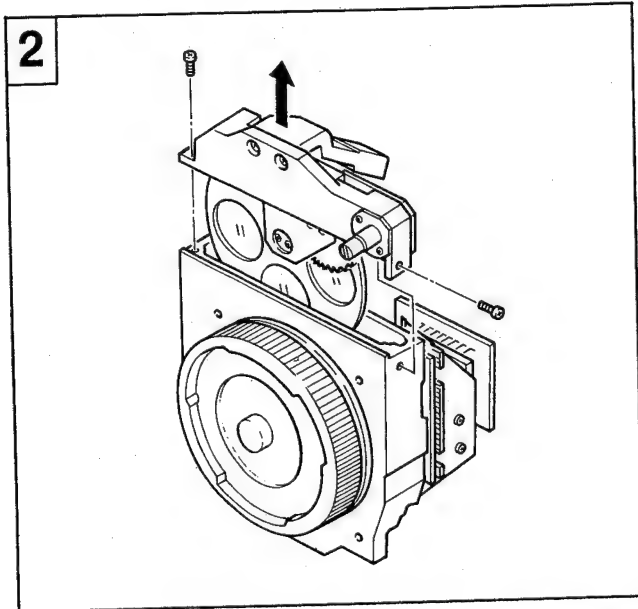
10. Loosen a set screw of a filter knob using by a L shaped hexagonal wrench and remove the filter knob. Remove the four hexagon hole bolt and remove the CCD unit from the front panel.



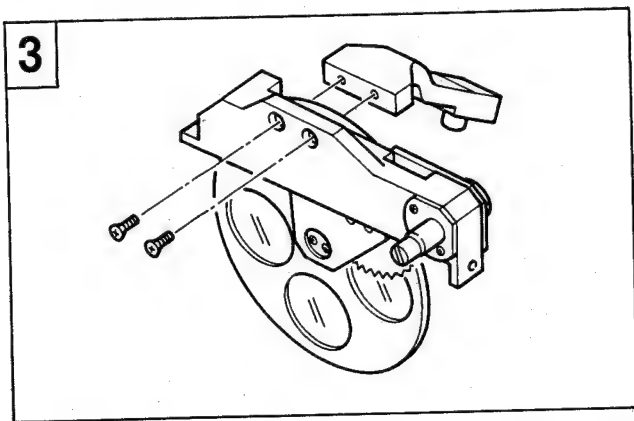
11. When a new CCD unit is installed, carry out the opposite procedures to disassembly.

### 3-3. REPLACEMENT OF FILTER BLOCK

1. Carry out Step 1 to Step 9 in Replacement of CCD unit.
2. Remove the two screws as shown below and remove the Peltier assy.



3. Remove the two screws and pull out the Filter Block in the direction of arrow. When removing the filter block from the prism block, be sure to cover the upper part of the prism block with cloth or paper to prevent from dust.

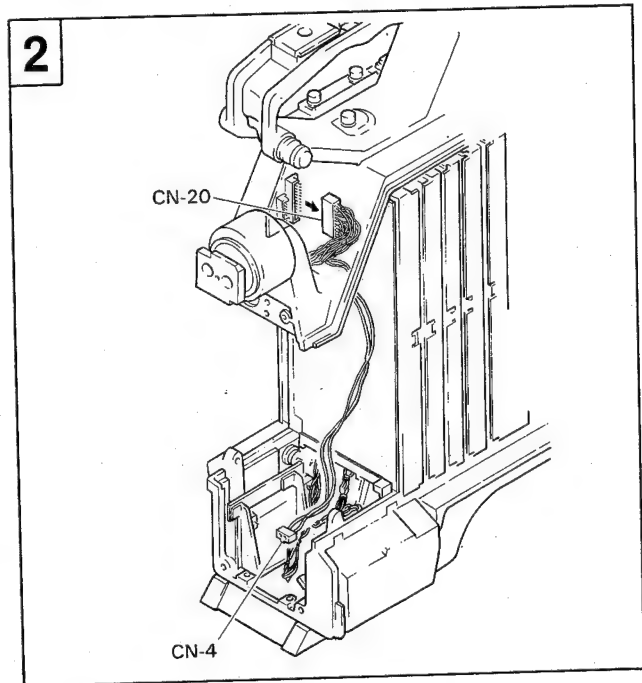


4. When a new FILTER BLOCK is installed, carry out the opposite procedures to disassembly.

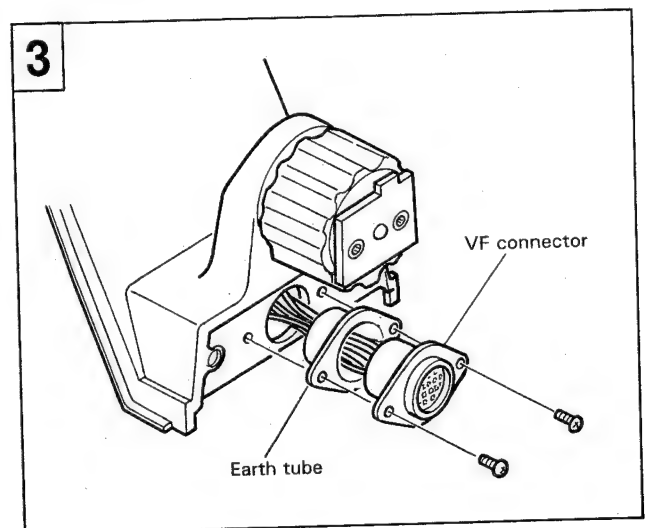
### 3-4. REPLACEMENT OF CONNECTORS

#### 3-4-1. Replacement of VF Connectors

1. Carry out Step 1 to Step 5 in "3-2, Replacement of CCD Unit".
2. Disconnect CN20 connector on HN-46 board and CN4 connector on RG-14 board.



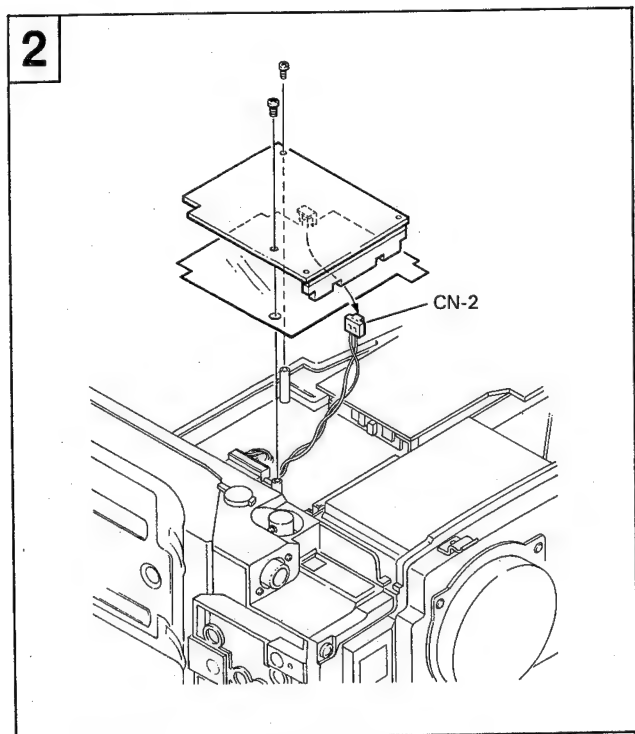
3. Remove two screws securing the VF connector to the camera and pull out the VF connector with harness attached. Remove the earth tube fixed with the VF connector.



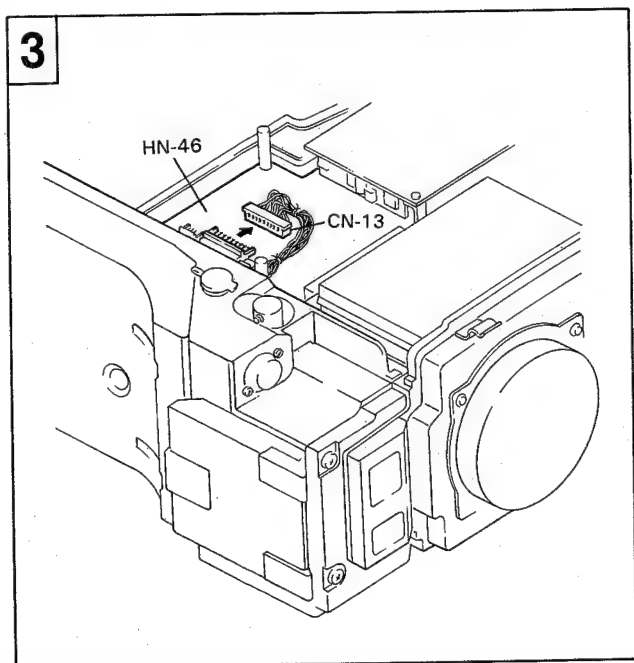
4. When the new VF connector is installed, reverse the procedures.

### 3-4-2. Replacement of Lens Connector

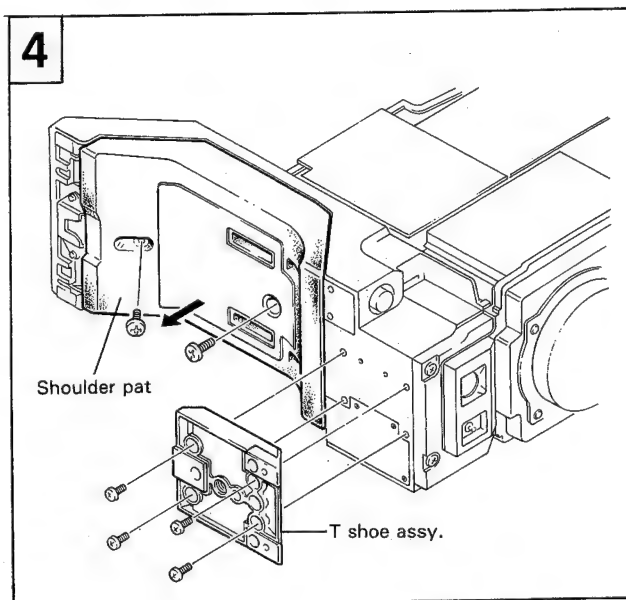
1. Remove the left side panel, seeing "3-1, Cabinet Removal".
2. Remove two screws and remove AT-42 board and the shielding board. Disconnect CN2 connector on the AT-42 board.



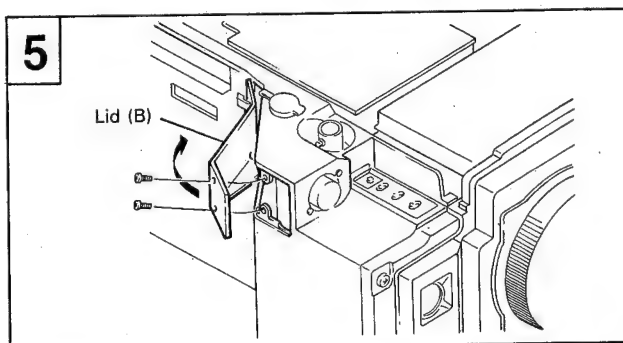
3. Disconnect CN13 connector on HN-46 board.



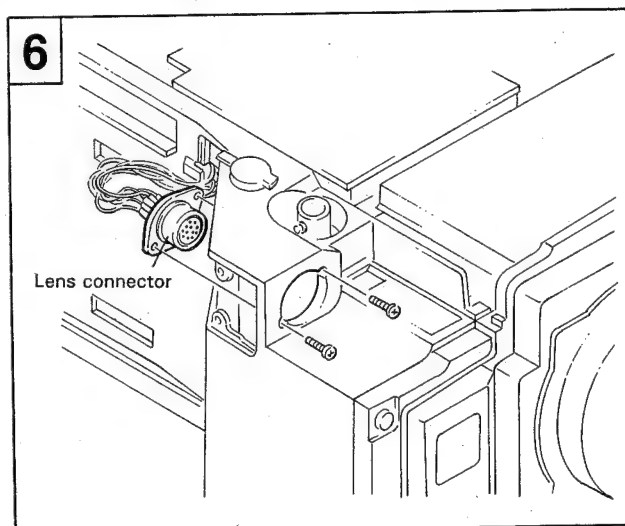
4. Lay BVP-5 as shown in the figure and remove the shoulder pat and T shoe assy.



5. Remove two screws and remove the lid (B).



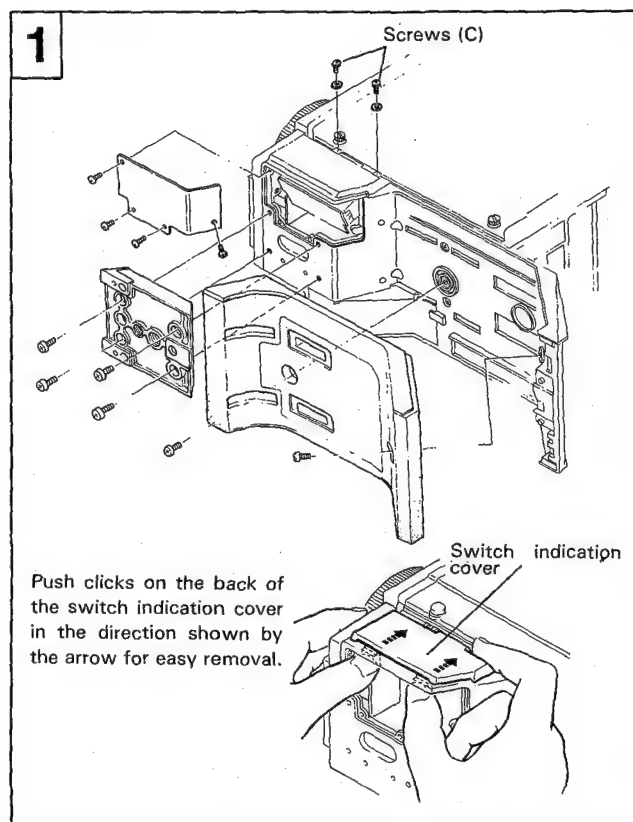
6. Remove two screws and remove the connector with harness attached.



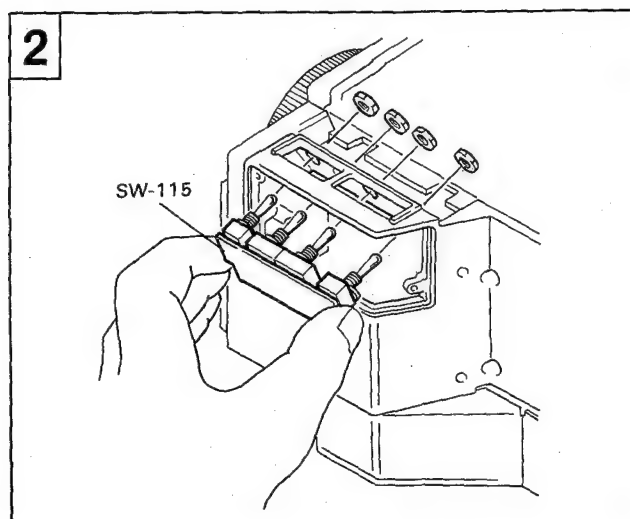
BVP-5 (UC)  
BVP-5P (EK)

### 3-5. REPLACEMENT OF FUNCTION SWITCHES

1. Remove the shoulder pat and T shoe assy.  
Remove two screws (C) and remove the switch indication cover.



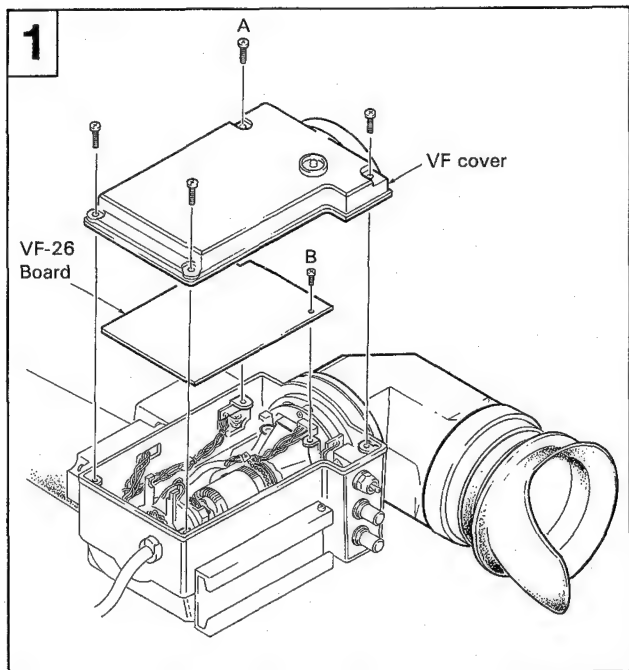
2. Remove nuts securing the switches and pull out SW-115 board with the switches attached.



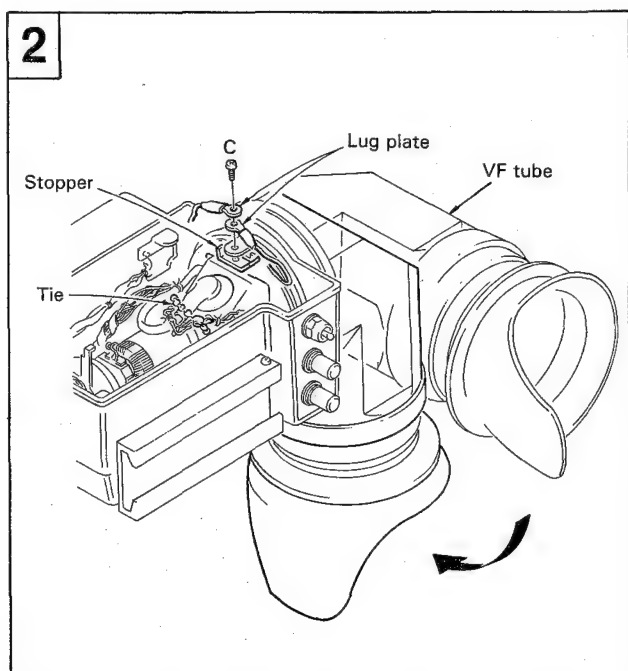
3. Desolder the switch for removal and replace it.

### 3-6. REPLACEMENT OF CRT

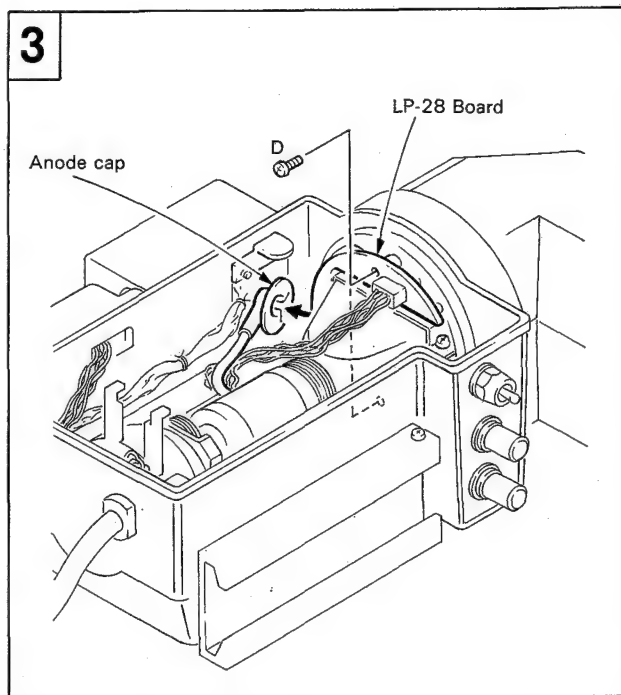
1. Remove the 4 VF cover screws (A) and take off the cover. Next, remove a fixing screw (B) of the VF-26 Board and remove the Board.



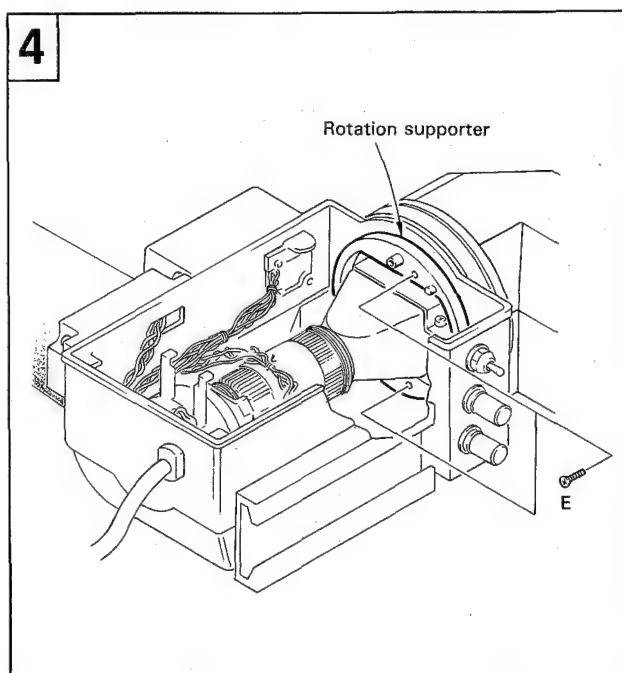
2. Turn the VF Tube so that the anode cap of CRT is upward. Remove the screw (C) and take off the stopper and 2 lug plates. Cut a tie.



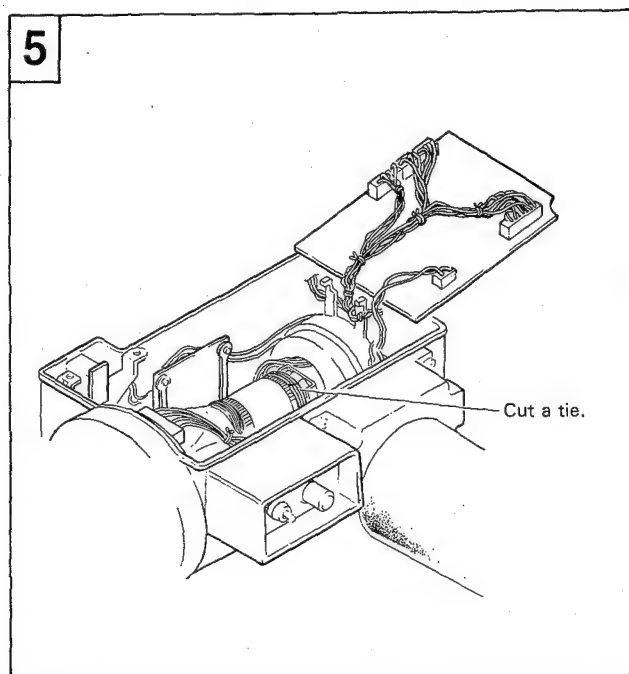
3. Remove the anode cap from the CRT. Remove the 2 fixing screws (D) and take off the LP-28 board.



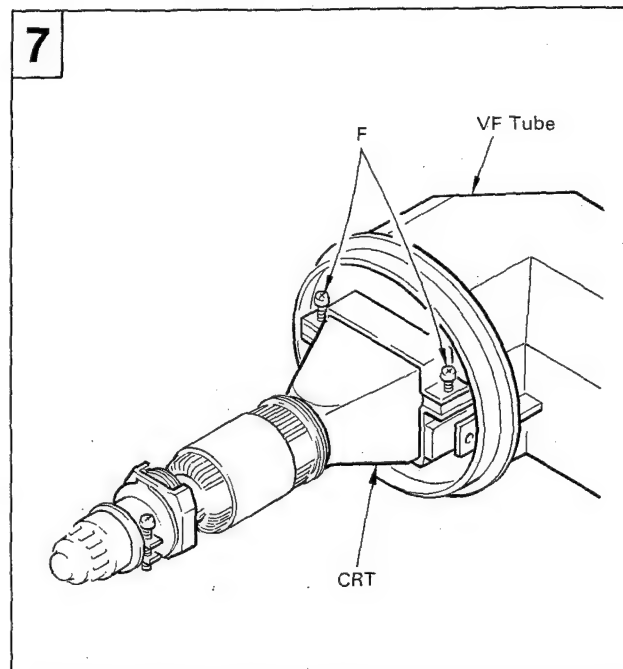
4. Remove the 2 fixing screws (E) and take off the rotation supporter.



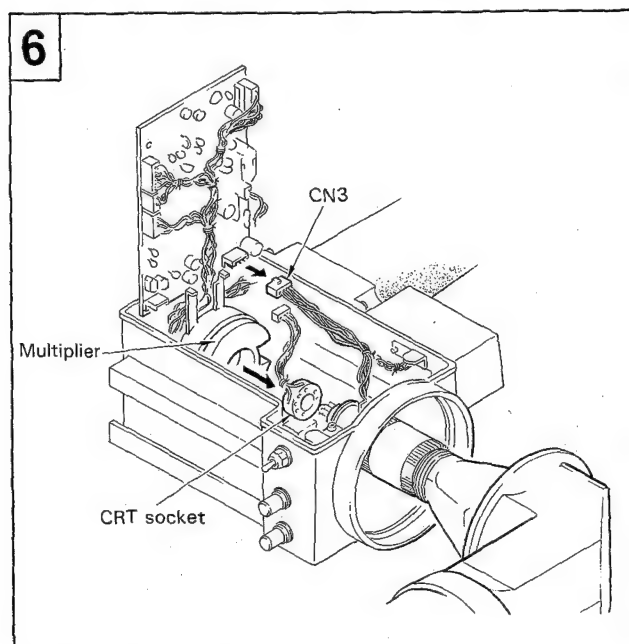
5. Cut a tie as illustrated.



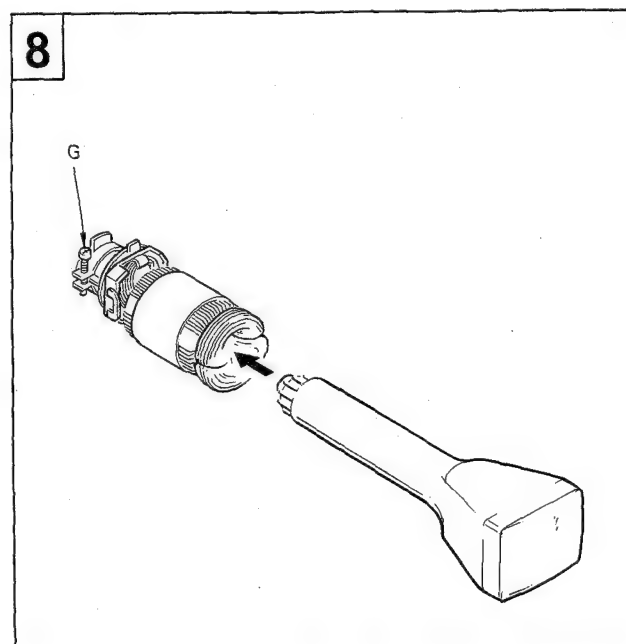
7. Loosen the 2 CRT retaining screws (F) and remove the CRT from the VF Tube.



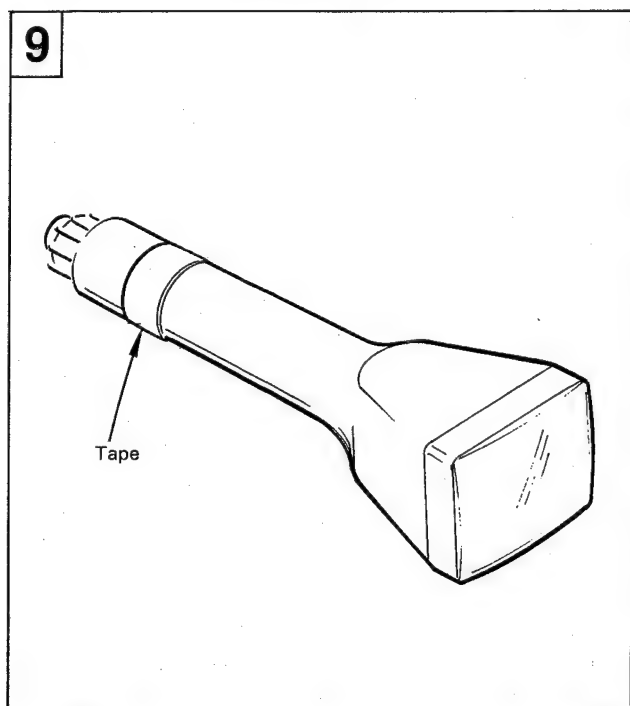
6. Pull the CRT out of the multiplier, and remove the CRT socket from the CRT.  
Disconnect the CN3 of VF-26 board.



8. Loosen the Deflection Yoke retaining screw (G) and remove the Deflection Yoke from the CRT.



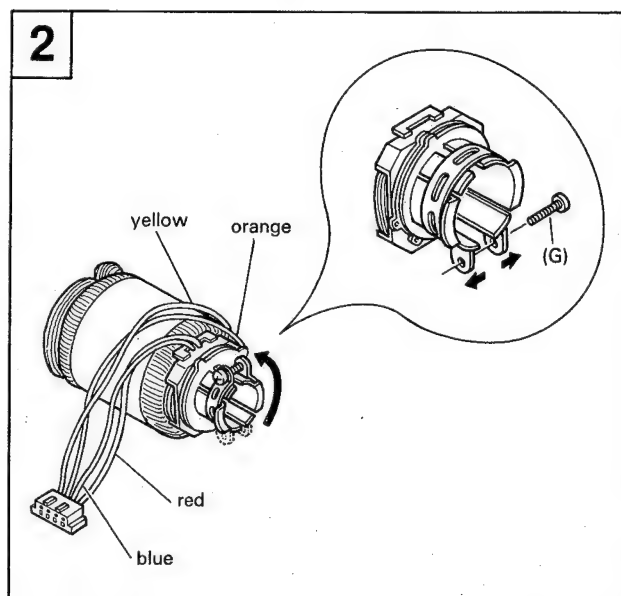
9. Tape around the neck of new CRT where the Deflection Yoke is to be attached, with a mending tape.



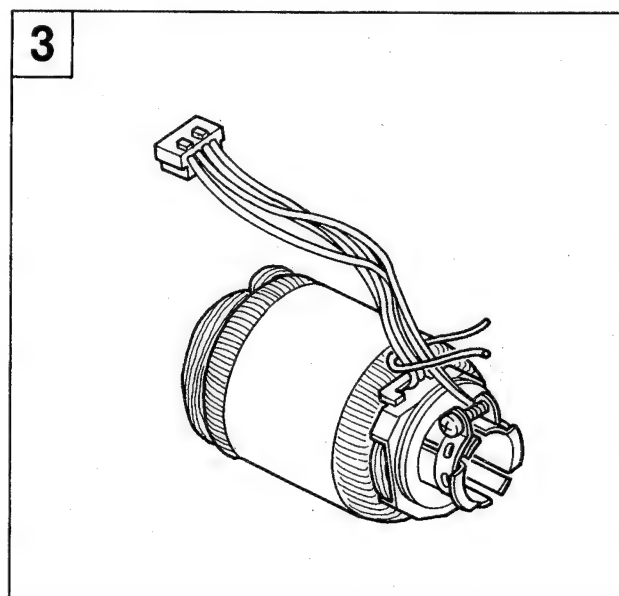
10. Install the CRT into the viewfinder with the reverse procedures for removal. Then, take enough care of the harness arrangement. A wrong arrangement damages the harness when the viewfinder is in use. Refer to 3-7, Deflection Yoke Replacement (Step 4~7) for proper arrangement of the harness.

### 3-7. REPLACEMENT OF DEFLECTION YOKE

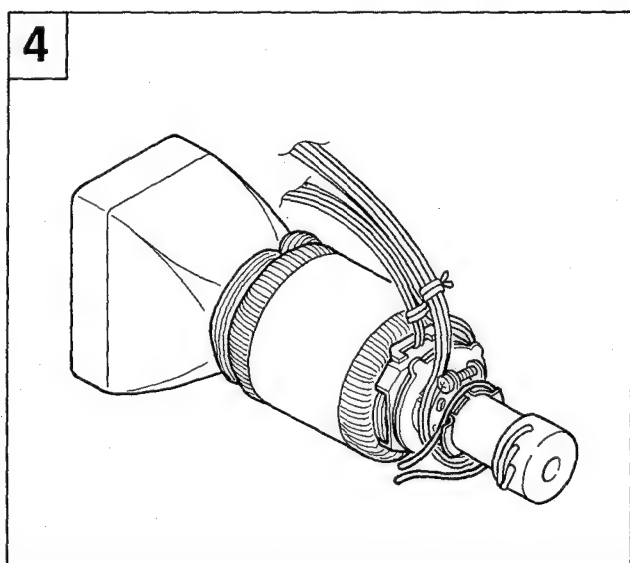
1. Remove the deflection yoke, referring to Step 1 to Step 7 in 3-6. Replacement of CRT.
2. Remove the fixing screw (G) and turn the deflection yoke 180° as illustrated. Replace the band of the deflection yoke with a new one.



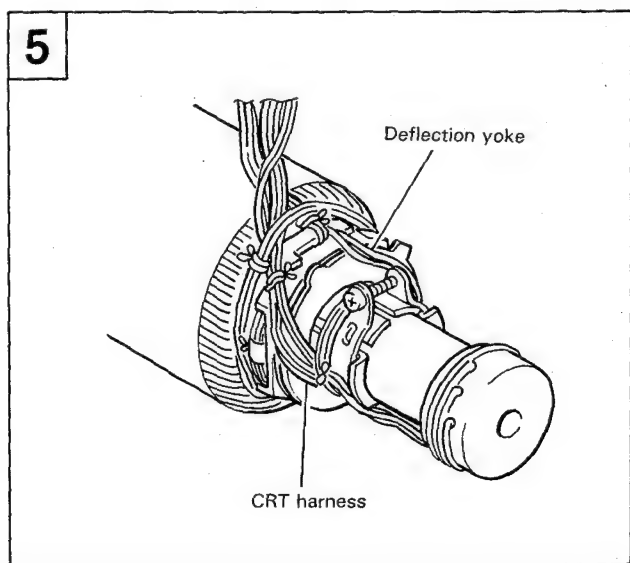
3. Bind the bottom of four lead wires attached to the deflection yoke.



4. Insert the CRT into the deflection yoke. Arrange the CRT harness as illustrated and bind it with a tie at the end of the deflection yoke.

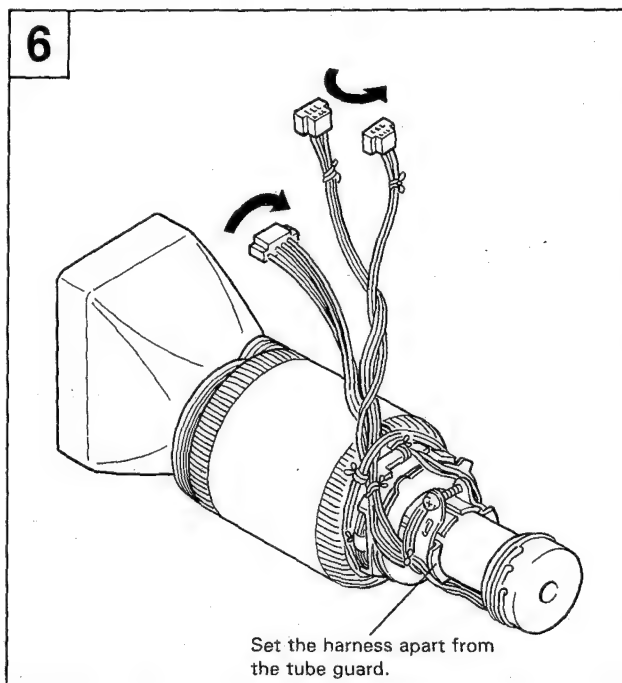


5. Bind the harness of the deflection yoke and the CRT harness to the deflection yoke with a tie. First bind the harness of the deflection yoke then the CRT harness.

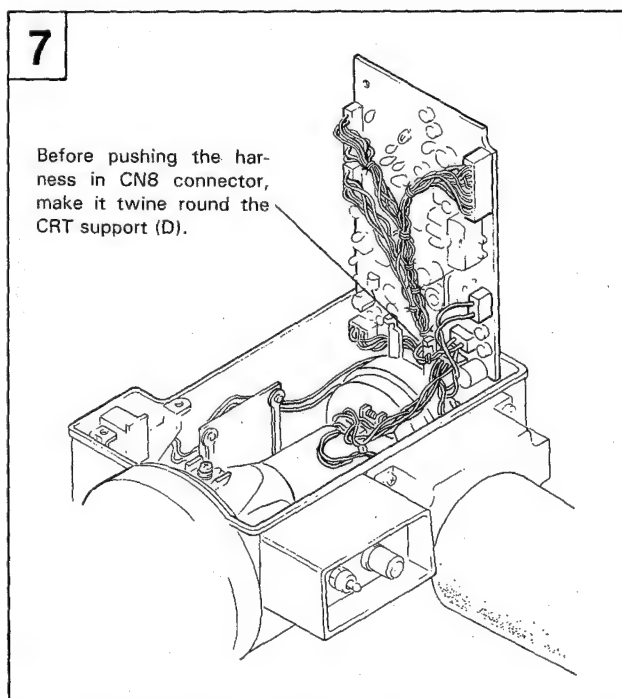


6. Twist the harness of the deflection yoke two and half or three turns counterclockwise as illustrated, then push it in CN3 connector. Twist the CRT harness five or six turns counterclockwise, then push it in CN2 and CN8 connectors.

At this time, they should be twisted on the average.



7. When the deflection yoke is installed, reverse the procedures for removal. When respective harnesses are attached to the VF-26 board, arrange them as illustrated below.

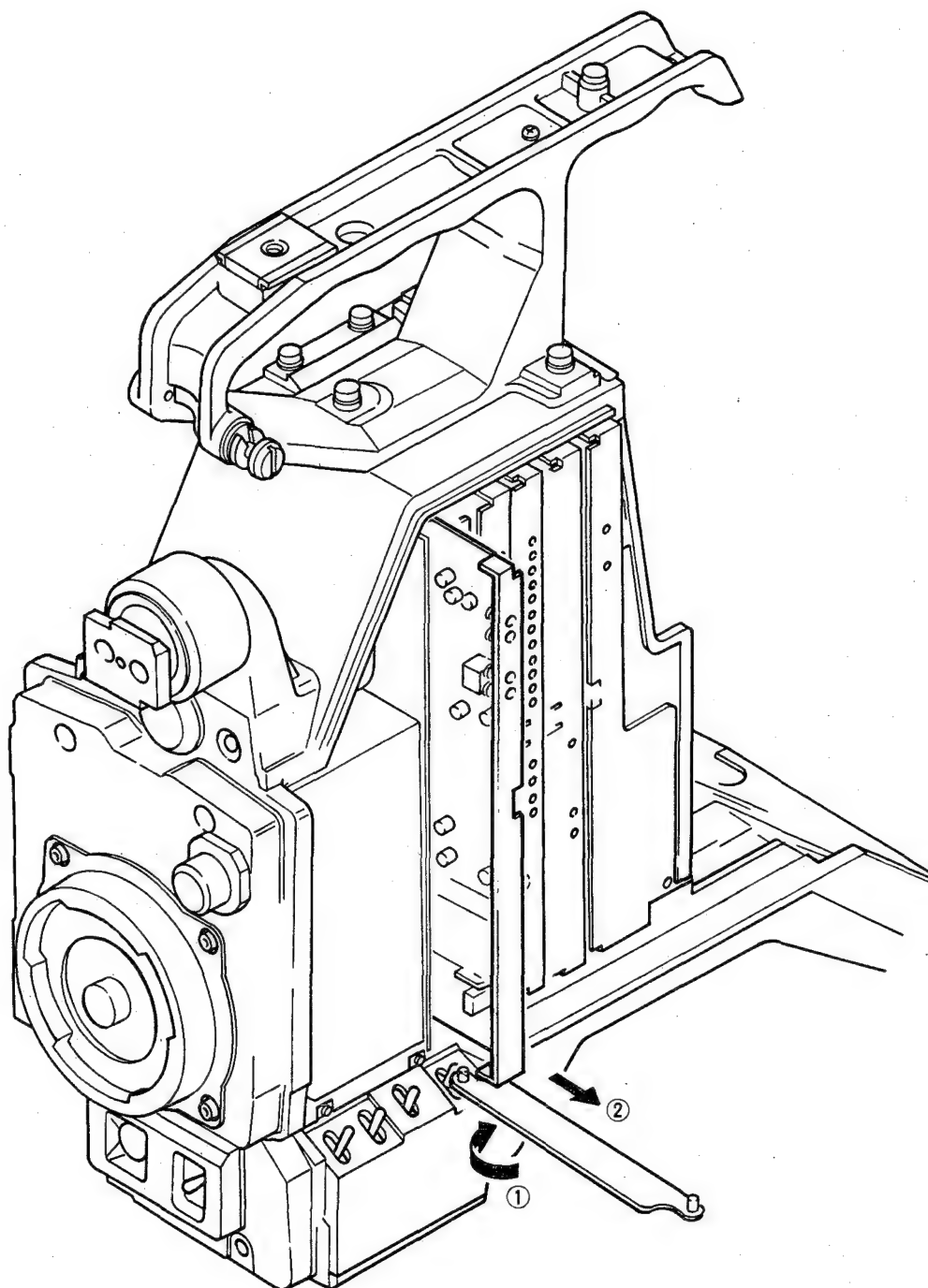




### 3-8. HOW TO USE THE BOARD EXTRACTOR

Put the board extractor in a hole at the bottom of the board.

Move it in the direction shown by the arrow ①, then pull in the direction shown by the arrow ②.



## 3-9. WARNING OF PARTS REPLACEMENT

### 3-9-1. Precautions on Replacement of VTR Connector (50P Connector)

The VTR connector (50 pin connector) is attached using a high-precision.

Special tool (CV positioning) so as to keep the accurate positioning relation with VTR mount (C shoe) and to dock with any of BVV-1A or BVV-1PS/1APS.

Avoid to loosen or remove the screws for 50 P connector, C SHOE and stopper (in all, eight screws) It is necessary to adjust using a jig, when the above parts are replaced.

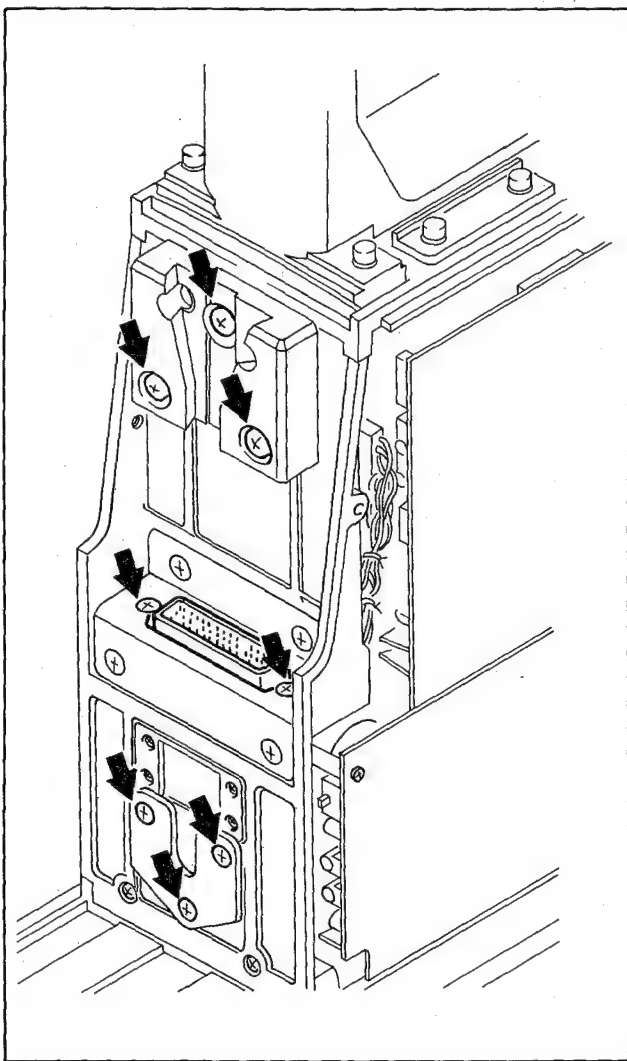
For replacement of the VTR connector (50-pin connector), contact your Sony dealer.

### 3-9-2. Warning of CCD Image Sensor Replacement

The BI-6 board on which the CCD is mounted had better not be removed.

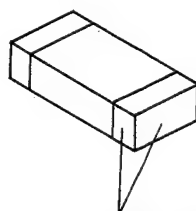
When removing it, the CCD is sometimes broken by the static electricity.

If the CCD is broken, the whole CCD unit must be replaced.



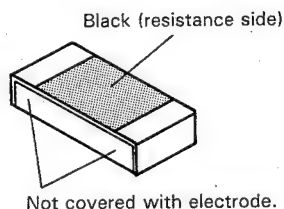
### 3-10. REPLACEMENT OF CHIP PARTS

Capacitor



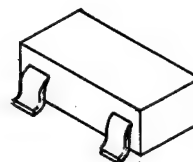
Covered with electrode.

Resistor



Not covered with electrode.

Diode and transistor



#### Tools required:

Soldering iron of approx. 20W

(Use a temperature controller, if possible, which can control the iron temperature to  $270 \pm 10^\circ\text{C}$ .)

Braided wire (SOLDER TAUL)

Solder (A solder of 0.6 mm in diameter is recommended.)

Tweezers

#### Soldering conditions:

Iron temperature of  $270 \pm 10^\circ\text{C}$

A connector should be soldered within 2 seconds.

The chip parts removed should not be used again.

For details, refer to CHIP COMPONENTS MANUAL, Sony's parts No. 9-972-289-01 prepared by Sony Corporation.

#### Procedures

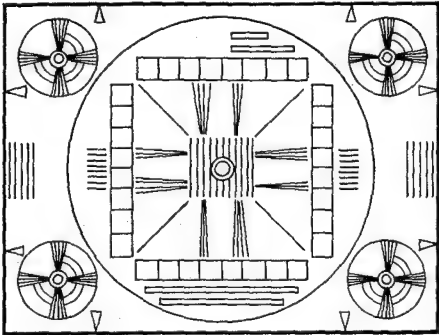
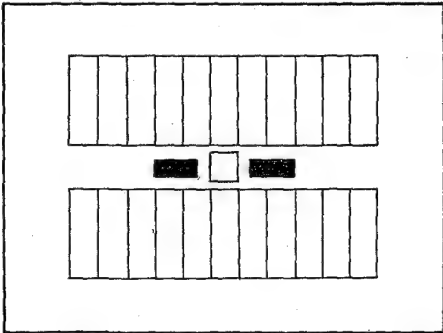
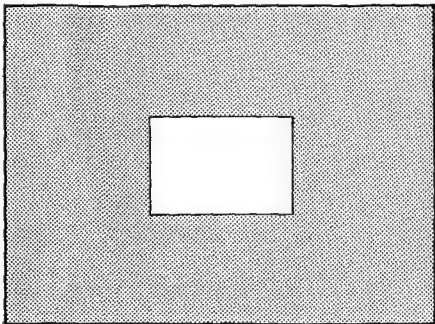
1. To remove a resistor or capacitor, place the tip of a soldering iron on chip parts to heat the parts, and then move it horizontally for removal while being desoldered. For removal of a diode or transistor, heat the one side, with two pins, of chip parts at the same time, set the parts up when desoldered, and remove the two pins. And then, remove the pin on another side.
2. Absorb solder by using a braided wire to smooth the land surface of board after removal.
3. Confirm by visual check that no pattern of the removed chip parts is peeled off and no adjacent parts is damaged or bridged.
4. Perform a thin pretinning on the pattern.
5. Place new chip parts on the pattern to solder its both sides.

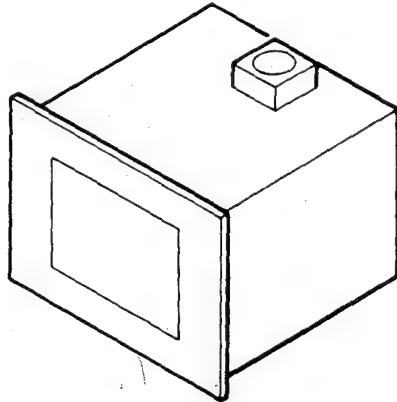
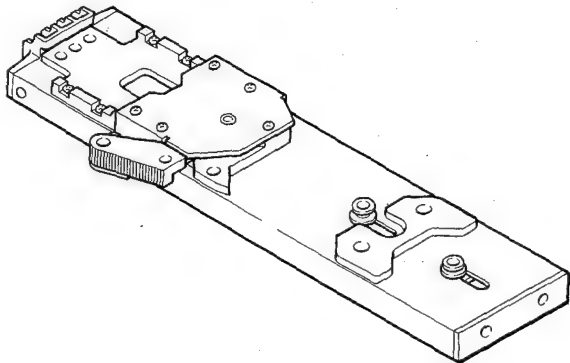
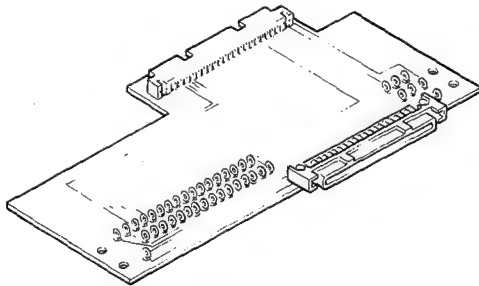
## SECTION 4

### ALIGNMENT

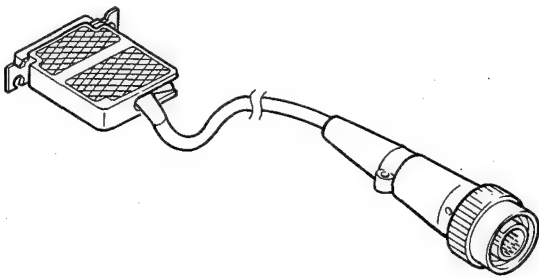
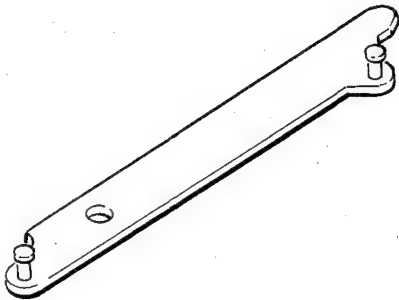
#### 4-1. PREPARATION

##### 4-1-1. Jigs and Measuring Instruments

<b>J-6026-100-A</b>	<b>Resolution Chart</b>
	
<b>J-6026-130-A</b>	<b>Gray Scale Chart</b>
<p>Stick the velvet (black) at the both sides of white pattern in the center so as to avoid the light leakage.</p>	
	
<b>White Window Chart</b>	
<p>Make a hole in the center of black paper as shown in the figure.</p>	
	

<b>J-6020-680-A</b>	<b>Pattern Box PTB-220 (190 to 220 Vac) with Color-bar Chart attached</b>
	
<b>A-7408-015-E</b>	<b>Tripod Adaptor</b>
	
<b>A-7520-213-A</b>	<b>Extension Board (EX-)</b>
	

ALIGNMENT

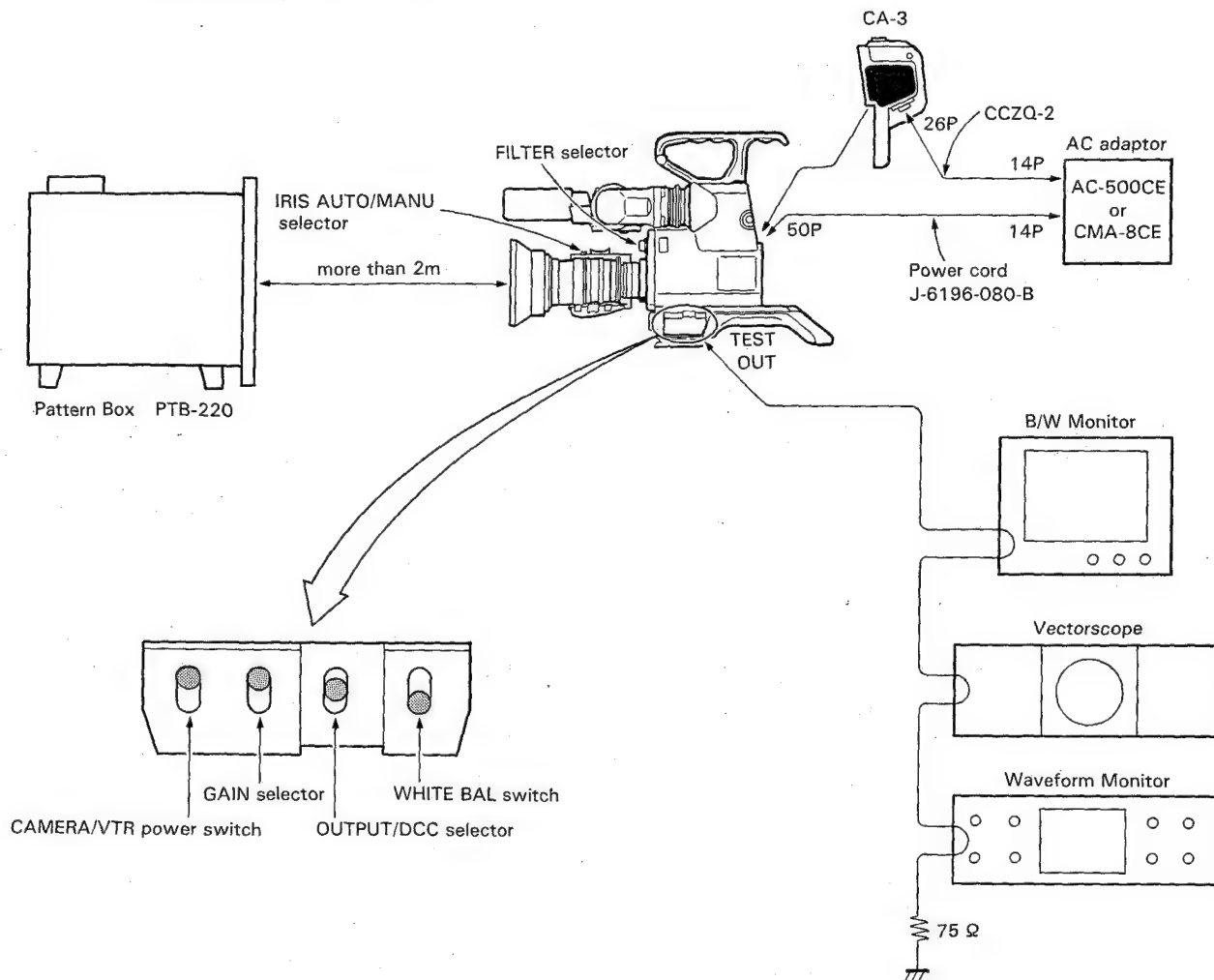
<b>J-6196-080-B</b>	<b>DC Power Cord</b>
Necessary without CA-3.	
	
<b>3-692-589-01</b>	<b>Board Extractor</b>
	

adaptor (Sony CA-3)  
or (Sony AC-500CE or CMA-8CE)  
Generator (Sony BVG-10P)

#### Measuring Instruments

- Oscilloscope
- Waveform Monitor
- Vectorscope
- Frequency Counter
- Digital Voltmeter
- B/W Monitor (H. Resolution: more than 700 TV lines)

#### 4-1-2. Connection and Initial Setting



1. Before adjustments, set the CAMERA/VTR power switch to "ON/STBY" position and warm up for ten minutes.
2. Reset the compensation data in the microcomputer.  
(See 4-1-3. Precautions of Adjustments)
3. Set the camera switches and controls as follows.  
[Side Panel]

CAMERA/VTR power switch:	ON/STBY
GAIN selector	: 0
OUTPUT/DCC selector	: CAM/OFF
WHITE/BAL switch	: PRESET
FILTER selector	: 1 (3200°K)
IRIS AUTO/MANU selector	: MANU
IRIS control	: CLOSE
[IE-15P Board]	
S1 <b>DTL</b>	: OFF
[PR-78 Board]	
S4 <b>MASKING</b>	: OFF

### 4-1-3. Precautions on Adjustments

#### \* Boards Extension

When IE-15P, VA-37, PR-78, EN-41P and PS-129 boards are extended, be sure to set the CAMERA/VTR power switch to OFF/SAVE position.

Extract boards, seeing 3-8. HOW TO USE THE BOARD EXTRACTOR.

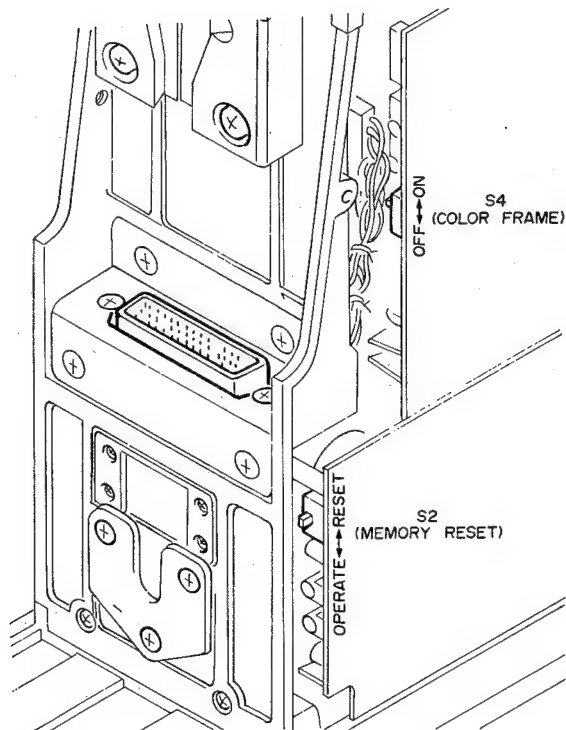
#### \* Procedure of Resetting Compensation Data

Before 4-4-11. Black Set • Pedestal Adjustment and 4-4-12. Flare Adjustment are carried out, the compensation data in the microcomputer must be reset in following order.

1. S2 (MEMORY RESET)/AT-42 board → RESET
2. CAMERA/VTR power switch (side panel) → OFF/SAVE  
Keep this switch position for ten seconds.
3. CAMERA/VTR power switch (side panel) → ON/STBY
4. S2 (MEMORY RESET)/AT-42 board → OPERATE

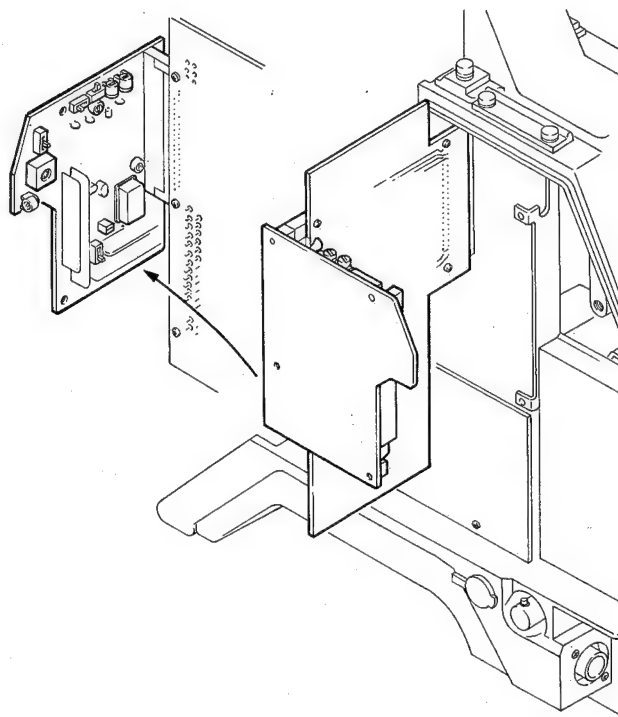
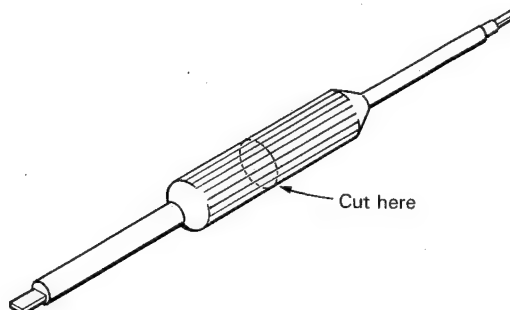
When the AUTO W/B BAL switch is not set to BLK or WHT position, the compensation data remains cleared (initial condition).

When the S2 (MEMORY RESET)/AT-42 board switch is set to RESET position, the compensation data is reset whenever the CAMERA/VTR power switch is set to OFF/SAVE position. Set the S2 switch to RESET position during adjustment.



#### \* SG-117P Board Adjustment

When 4-3-2. SYNC Width Adjustment, 4-3-5. H BLKG Adjustment and 4-3-6. INT SC Phase Adjustment are carried out, a screw driver with short handle is available for adjustments.



#### \* Partial Adjustment

Overall adjustment is described in 4-2. POWER SUPPLY ADJUSTMENT to 4-6. AUTO SYSTEM ADJUSTMENT. When performing partial adjustment, refer to 4-8. PARTIAL ADJUSTMENT.

#### \* Earthing Point

Use the GND terminal on the extension board, unless otherwise specified.

## 4-2. POWER SUPPLY ADJUSTMENT

- Note**
- The adjustment is not necessary if error is within  $\pm 3\%$  of rated voltage.
  - When performing this adjustment, be sure to readjust all of the following (to 4-7. VIEWFINDER ADJUSTMENT).
  - Perform adjustments in order.

Equipment; Digital Voltmeter  
To be extended; PS-129 board

### 4-2-1. DC Bias Adjustment

Test Point; TP1 (GND:TP2)/PS-129 board  
Adj. Point; ● RV1 (BIAS SET)/PS-129 board  
Spec.;  $+1.83 \pm 0.01\text{Vdc}$

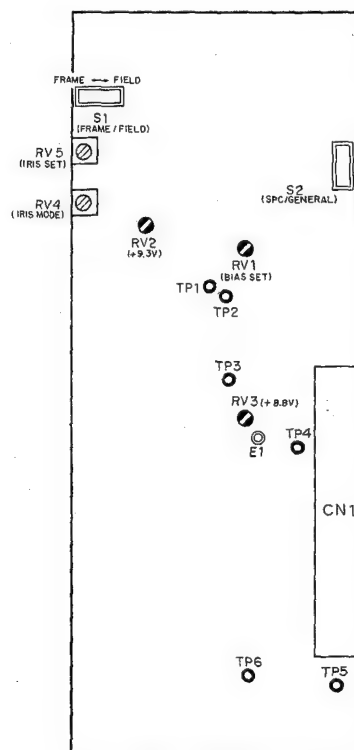
### 4-2-2. +9.3V Adjustment

Test Point; TP3 (GND:E1)/PS-129 board  
Adj. Point; ● RV2 (+9.3V)/PS-129 board  
Spec.;  $+9.3 \pm 0.01\text{Vdc}$

### 4-2-3. +8.8V Adjustment

Test Point; TP4 (GND:E1)/PS-129 board  
Adj. Point; ● RV3 (+8.8V)/PS-129 board  
Spec.;  $+8.8 \pm 0.01\text{Vdc}$

**Note;** After these adjustments are completed, confirm that the voltage at TP6 (GND:E1)/PS-129 board is  $+5.0 \pm 0.2\text{Vdc}$  and the voltage at TP5 (GND:E1)/PS-129 board is  $-5.0 \pm 0.2\text{Vdc}$



PS-129 BOARD (COMPONENT SIDE)



## 4-3. SYNCHRONIZING SIGNAL SYSTEM ADJUSTMENT

- Note**
- Before adjustment, set the CAMERA/VTR power switch to ON/STBY position and warm up for ten minutes.
  - Make sure that the camera is not in GENLOCK mode.

### 4-3-1. Subcarrier Frequency Adjustment

Equipment; Frequency Counter  
(Connect the inductor of more than  $100\mu\text{H}$  in series to between the probe of Counter and Test Point.)

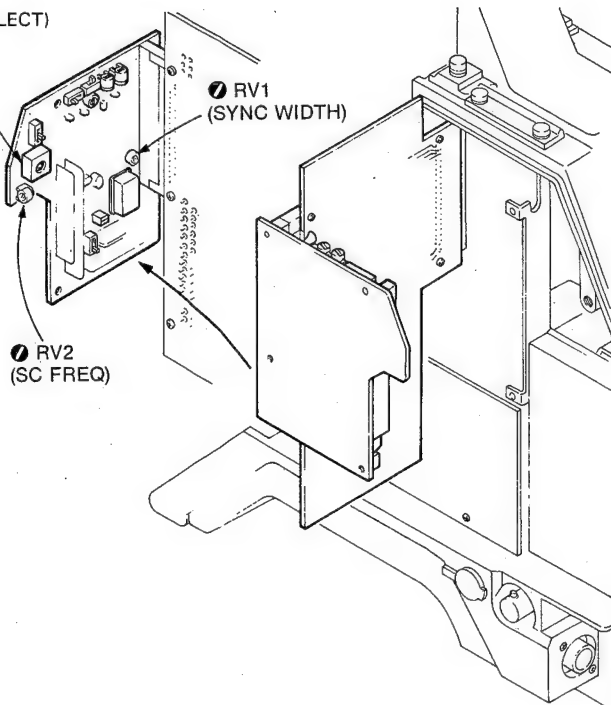
To be extended; SG-117P Board

Test Point; TP26(GND:TP25)/extension board

Adj. Point;  $\text{RV2}$  (SC FREQ)/SG-117P Board

Spec.;  $4,433,619 \pm 5\text{Hz}$

S1  
(H BLKG SELECT)



### 4-3-2. SYNC Width Adjustment (Serial No. 10011 ~)

Equipment; Waveform Monitor

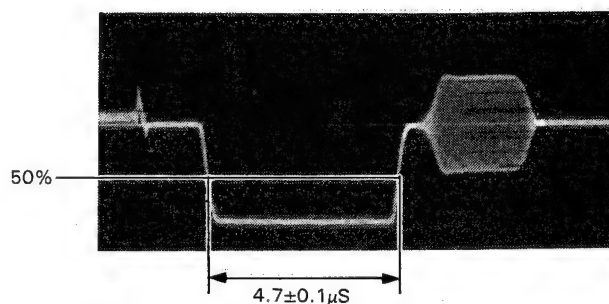
To be extended; SG-117P Board

Preparation; ENC/REGI selector (side panel) → "ENC"

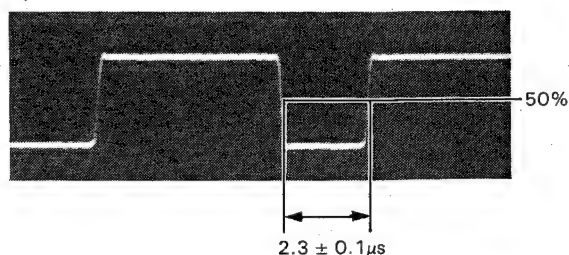
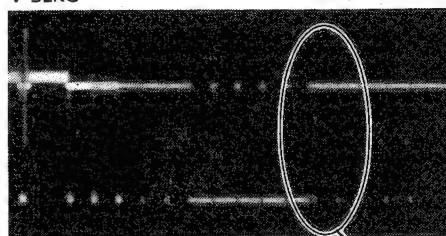
Adj. Point;  $\text{RV1}$  (SYNC WIDTH)/SG-117P board

Spec.; SYNC Width  $4.7 \pm 0.1\mu\text{S}$

Equalizing Pulse Width  $2.3 \pm 0.1\mu\text{S}$



V BLKG



### 4-3-3. SYNC Phase Adjustment

Equipment; Oscilloscope

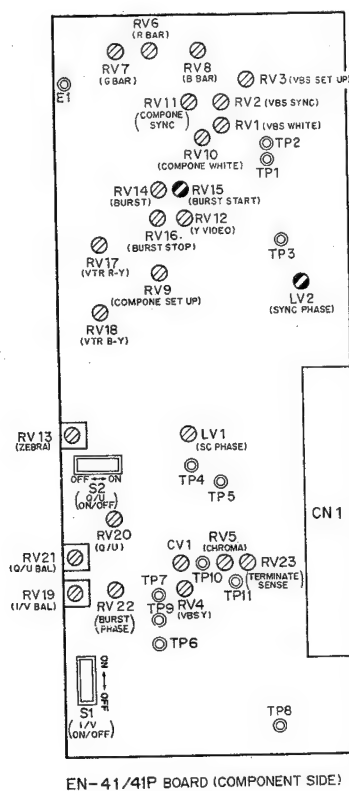
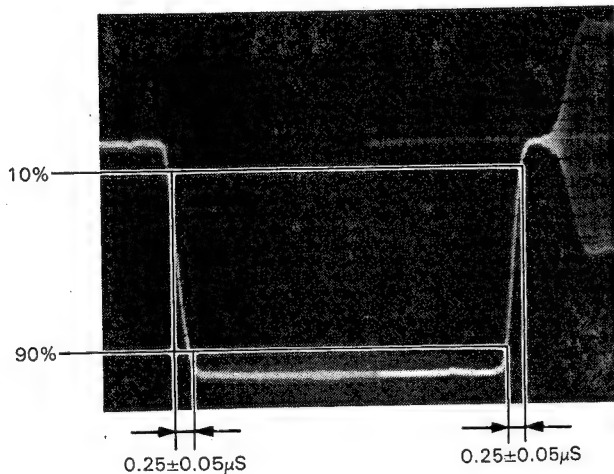
To be extended; EN-41P Board

Preparation; ENC/REGI switch (side panel) → "ENC"

Test Point; TP9(GND:TP11)/extension board

Adj. Point; ⓪ LV2 (SYNC PHASE)/EN-41P Board

Spec.; Rise and fall time  $0.25 \pm 0.05 \mu\text{s}$   
(Adjust so as to disappear the overshoot and undershoot.)



### 4-3-4. Burst Flag Adjustment

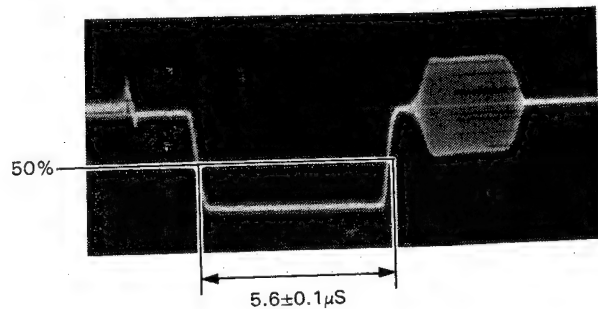
Equipment; Waveform Monitor

To be extended; EN-41P board

Preparation; ENC/REGI selector (side panel) → "ENC"

Test Point; TEST OUT terminal

Adj. Point; ⓪ RV15 (BURST START)/EN-41P board



### 4-3-5. H BLKG Adjustment

Equipment; Waveform Monitor

To be extended; SG-117P Board

Preparation; • ENC/REGI selector (side panel) → "ENC"  
• AUTO/MANU switch of Pattern Box → "AUTO"

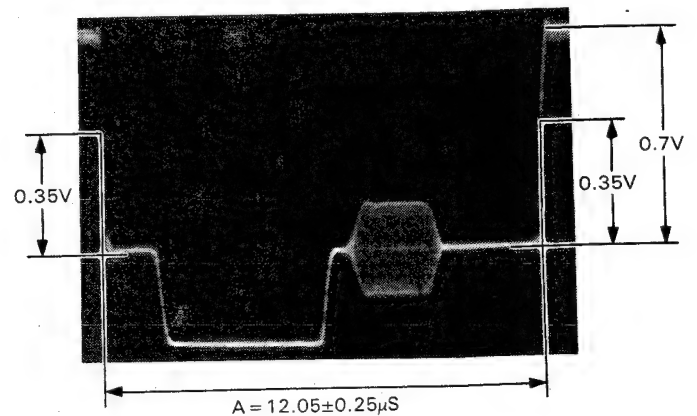
• Shoot so that the white window frame touches the underscanned picture frame on the monitor.

Adjust the iris control so that the video level at TEST OUT terminal is 0.7 V.

Test Point; TEST OUT terminal

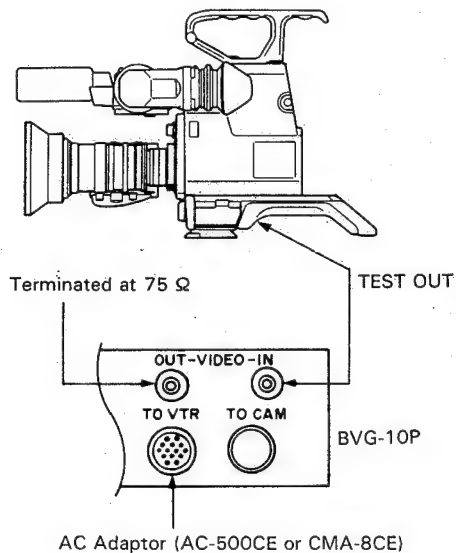
Adj. Point; S1 (H BLKG SELECT)/SG-117P Board

Spec.;  $A = 12.05 \pm 0.25 \mu\text{s}$



#### 4-3-6. INT SC Phase Adjustment

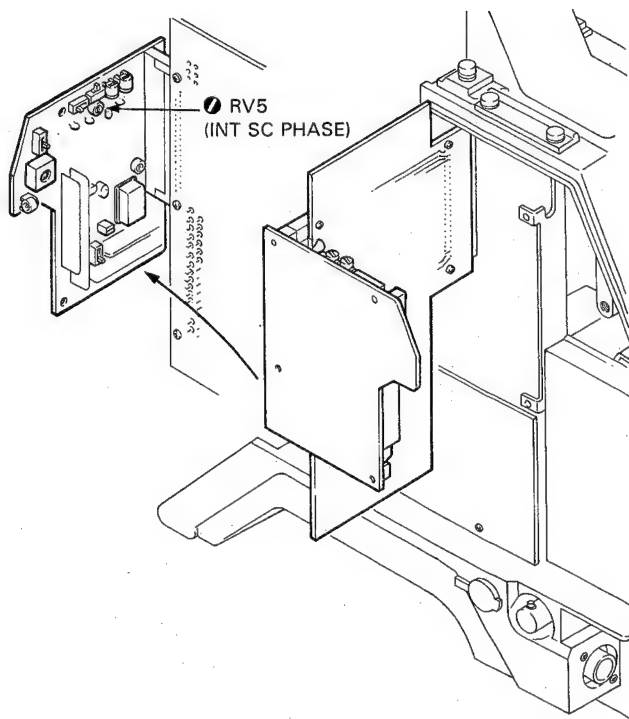
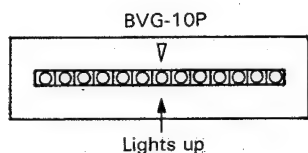
Equipment; CF Pulse Generator (Sony BVG-10P)  
Connection;



To be extended; SG-117P Board

Preparation; Selector of BVG-10P → "SOURCE CHECK"

Adjustment; Adjust  $\bullet$  RV5 (INT SC PHASE)/SG-117P board so that the LED lamp of BVG-10P lights at center.



## 4-4. VIDEO SIGNAL SYSTEM ADJUSTMENT

### 4-4-1. H BLKG Balance Adjustment *Seite 6-8 Block*

Equipment; Oscilloscope

To be extended; VA-37 board

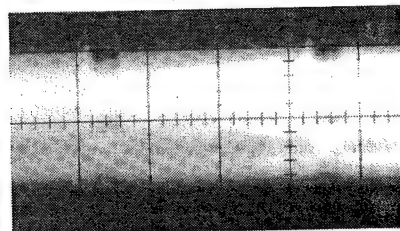
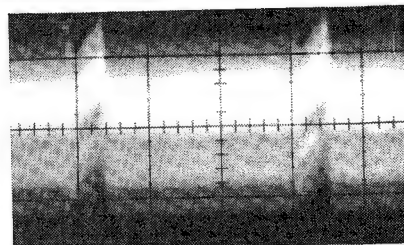
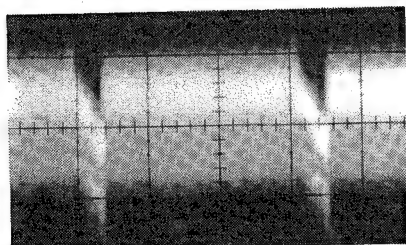
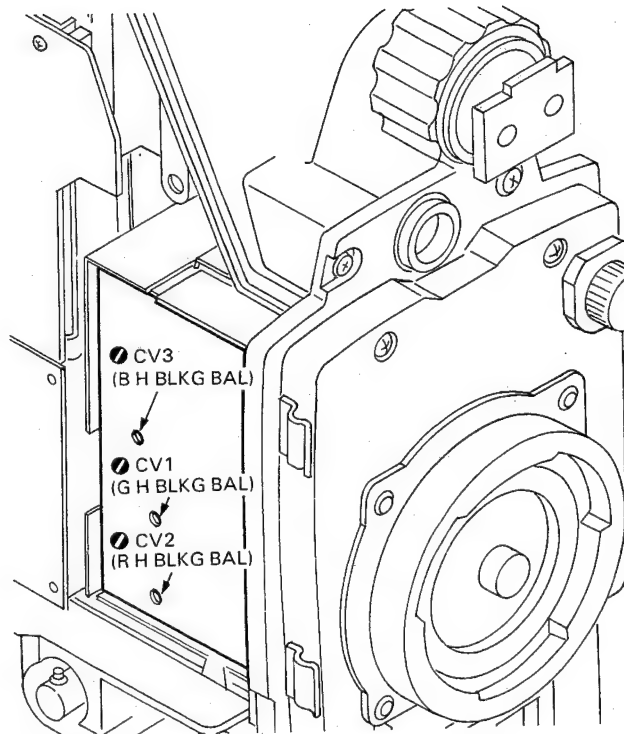
Preparation; Remove the shielding case of PA-51 board  
(left side).

Set the iris control to "CLOSE".

Trigger; HD (TP25/extension board)

1. Adjust ● CV1 (G H BLKG BAL)/PA-51 board so that the waveform at TP34 (GND:TP33)/extension board is nearly flat.
2. Adjust ● CV2 (R H BLKG BAL)/PA-51 board so that the waveform at TP36 (GND:TP35)/extension board is nearly flat.
3. Adjust ● CV3 (B H BLKG BAL)/PA-51 board so that the waveform at TP32 (GND:TP31)/extension board is nearly flat.

*Working for Black-level etc.*



**Note;** After this adjustment is completed, install the shielding case.

#### 4-4-2. DC Balance Adjustment

Equipment; Oscilloscope (DC MODE)

To be extended; VA-37 board

Preparation;  $\begin{matrix} \bullet \text{ RV6 } \boxed{\text{G GAIN}} \\ \bullet \text{ RV2 } \boxed{\text{R GAIN}} \\ \bullet \text{ RV10 } \boxed{\text{B GAIN}} \end{matrix} \left. \vphantom{\begin{matrix} \bullet \text{ RV6 } \boxed{\text{G GAIN}} \\ \bullet \text{ RV2 } \boxed{\text{R GAIN}} \\ \bullet \text{ RV10 } \boxed{\text{B GAIN}} \end{matrix}} \right\} \text{VA-37 board} \rightarrow \text{mechanical center}$

Trigger; HD (TP25/extension board)

1. Adjust  $\bullet$  RV29 (G DC BAL)/VA-37 board so that the DC level at the cathode of D4 or TP5 (GND:E1)/VA-37 board is  $1.3 \pm 0.2 \text{Vdc}$ .
2. Adjust  $\bullet$  RV28 (R DC BAL)/VA-37 board so that the DC level at the cathode of D1 or TP4 (GND:E1)/VA-37 board is  $1.3 \pm 0.2 \text{Vdc}$ .
3. Adjust  $\bullet$  RV30 (B DC BAL)/VA-37 board so that the DC level at the cathode of D7 or TP6 (GND:E1)/VA-37 board is  $1.3 \pm 0.2 \text{Vdc}$ .

**Note;** After adjustment is completed, be sure to carry out 4-4-3. VA Gain Adjustment.

#### 4-4-3. VA Gain Adjustment

- Note**
- Be sure to complete 4-4-2. DC Balance Adjustment, or this adjustment will become invalid.
  - Use a white pattern chart for this adjustment. Adjust the lighting so that the white area is exactly 3200°K of color temperature.
  - When the pattern box is used, well maintained pattern box should be used.

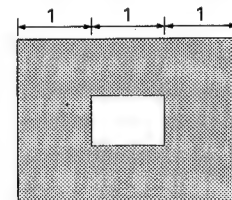
Object; White Pattern Chart (3200°K)

Equipment; Oscilloscope

To be extended; VA-37 board

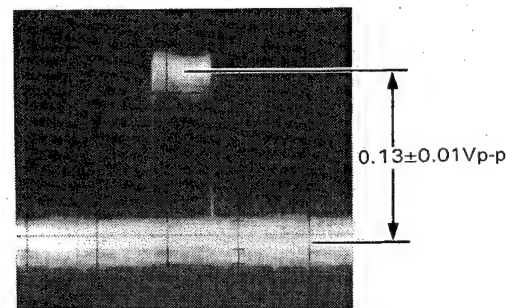
Trigger; HD (TP25/extension board)

1. Adjust the iris control and shoot the chart as shown below.

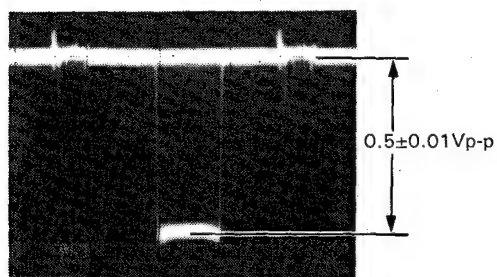


Monitor Screen

2. Adjust the iris control so that the white level at TP34 (GND:TP33)/extension board is  $0.13 \pm 0.01 \text{Vp-p}$ .



3. Adjust  $\odot$  RV6 **G GAIN**/VA-37 board so that the white level at TP9/extension board is  $0.5 \pm 0.01V_{p-p}$ .
4. Adjust  $\odot$  RV2 **R GAIN**/VA-37 board so that the white level at TP7/extension board is  $0.5 \pm 0.01V_{p-p}$ .
5. Adjust  $\odot$  RV10 **B GAIN**/VA-37 board so that the white level at TP5/extension board is  $0.5 \pm 0.01V_{p-p}$ .



#### 4-4-4. Test Signal Waveform Adjustment

**Note;** Be sure to complete 4-4-3. VA Gain Adjustment, or this adjustment will become invalid.

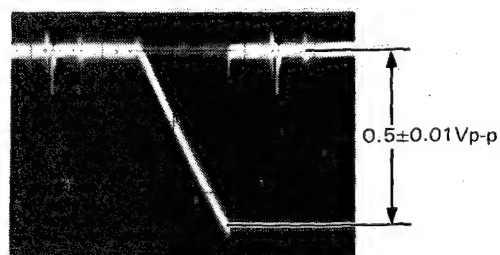
Equipment; Oscilloscope

To be extended; VA-37 board

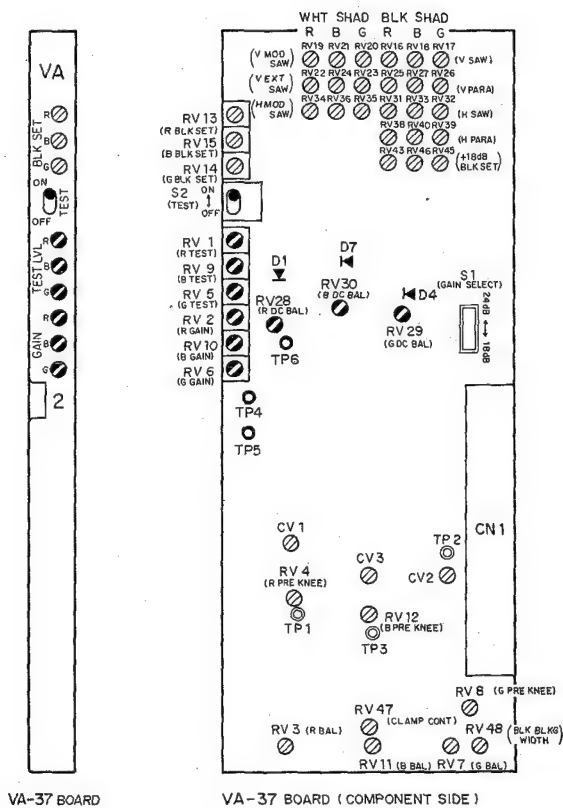
Preparation; S2 **TEST**/VA-37 board  $\rightarrow$  "ON"

Trigger; HD (TP25/extension board)

1. Adjust  $\odot$  RV5 **G TEST**/VA-37 board so that the peak level at TP9/extension board is  $0.5 \pm 0.01V_{p-p}$ .
2. Adjust  $\odot$  RV1 **R TEST**/VA-37 board so that the peak level at TP7/extension board is  $0.5 \pm 0.01V_{p-p}$ .
3. Adjust  $\odot$  RV9 **B TEST**/VA-37 board so that the peak level at TP5/extension board is  $0.5 \pm 0.01V_{p-p}$ .



**Note;** After this adjustment is completed, set the S2 **TEST**/VA-37 board to "OFF".



#### 4-4-5. Pre Knee Adjustment

Equipment; Oscilloscope

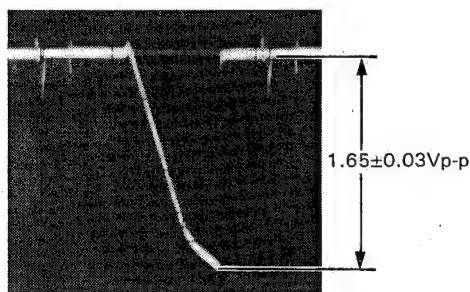
To be extended; VA-37 board

Preparation; • S1 (GAIN SELECT)/VA-37 board → "+18dB"

- S2 [TEST]/VA-37 board → "ON"
- GAIN selector (side panel) → "18"

Trigger; HD (TP25/extension board)

1. Adjust ⚙ RV8 (G PRE KNEE)/VA-37 board so that the peak level at TP9/extension board is  $1.65 \pm 0.03V_{p-p}$ .
2. Adjust ⚙ RV4 (R PRE KNEE)/VA-37 board so that the peak level at TP7/extension board is  $1.65 \pm 0.03V_{p-p}$ .
3. Adjust ⚙ RV12 (B PRE KNEE)/VA-37 board so that the peak level at TP5/extension board is  $1.65 \pm 0.03V_{p-p}$ .



**Note;** After this adjustment is completed, set the GAIN selector (side panel) to "0" and S2 [TEST]/VA-37 board to "OFF".

#### 4-4-6. Modulator Balance Adjustment

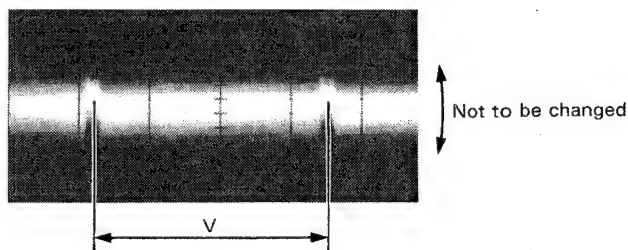
Equipment; Oscilloscope

To be extended; VA-37 board

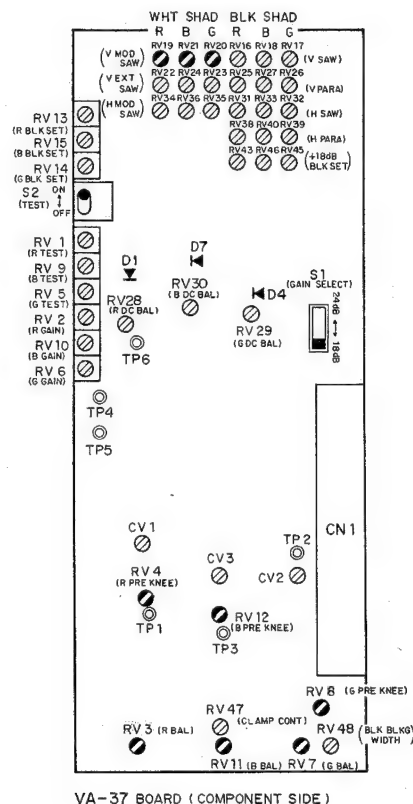
Preparation; Set the iris control to "CLOSE"

Trigger; VD (TP26/extension board)

1. Adjust ⚙ RV7 (G BAL)/VA-37 board so that the waveform at TP9/extension board does not change even if ⚙ RV20 (G-V MOD SAW)/VA-37 board is turned both clockwise and counterclockwise.
2. Adjust ⚙ RV3 (R BAL)/VA-37 board so that the waveform at TP7/extension board does not change even if ⚙ RV19 (R-V MOD SAW)/VA-37 board is turned both clockwise and counterclockwise.
3. Adjust ⚙ RV11 (B BAL)/VA-37 board so that the waveform at TP5/extension board does not change even if ⚙ RV21 (B-V MOD SAW)/VA-37 board is turned both clockwise and counterclockwise.



**Note;** After this adjustment is completed, be sure to carry out 4-4-10. White Shading Adjustment.



#### 4-4-7. Gamma Balance Adjustment

**Note:** Be sure to complete 4-4-4. Test Signal Waveform Adjustment, or this adjustment will become invalid.

Equipment; Oscilloscope

To be extended; PR-78 board

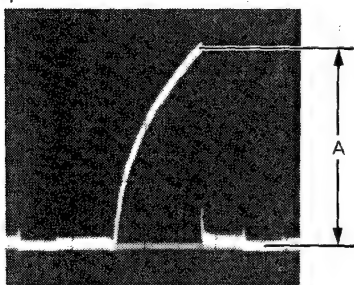
Preparation; • S2 **TEST**/VA-37 board → "ON"

• S5 (WHITE CLIP & KNEE)/PR-78 board → "OFF"

Trigger; HD (TP25/extension board)

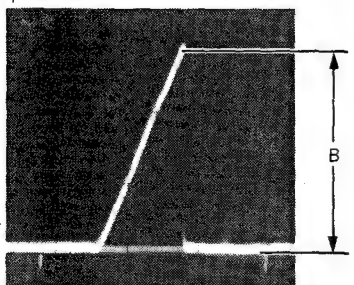
1. Adjust **RV10** (G  $\gamma$  BAL)/PR-78 board so that the peak level at TP17/extension board does not change even if the S2 (G  $\gamma$ )/PR-78 board is set to ON or OFF.
2. Adjust **RV1** (R  $\gamma$  BAL)/PR-78 board so that the peak level at TP18/extension board does not change even if the S1 (R  $\gamma$ )/PR-78 board is set to ON or OFF.
3. Adjust **RV19** (B  $\gamma$  BAL)/PR-78 board so that the peak level at TP16/extension board does not change even if the S3 (B  $\gamma$ )/PR-78 board is set to ON or OFF.

$\gamma$ : ON



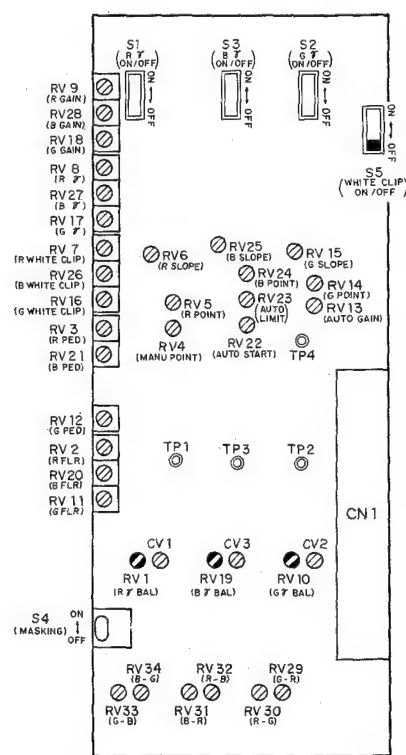
A = B

$\gamma$ : OFF



**Note:** After this adjustment is completed, set the switches as follows.

- S1 (R  $\gamma$ )
- S2 (G  $\gamma$ )
- S3 (B  $\gamma$ )
- S5 (WHITE CLIP & KNEE)/PR-78 board → "OFF"
- S2 **TEST**/VA-37 board → "OFF"



PR-78 BOARD (COMPONENT SIDE)

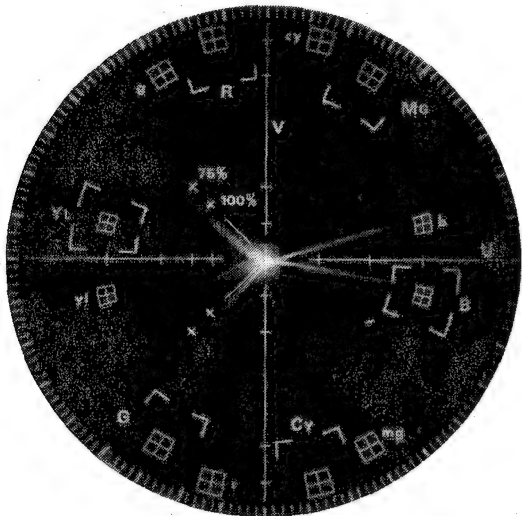


#### 4-4-8. Carrier Balance Adjustment

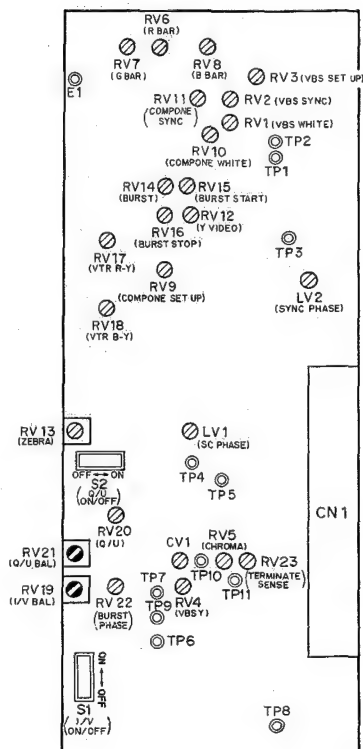
Equipment; Vectorscope (MAX GAIN)

Preparation; • OUTPUT/DCC selector (side panel) →  
"BARS/OFF"

1. Adjust  $\odot$  RV19 V BAL and  $\odot$  RV21 U BAL /EN-41P board so as to center the black beam spot on the vectorscope.



EN-41P BOARD  
(PANEL SIDE)



EN-41/41P BOARD (COMPONENT SIDE)


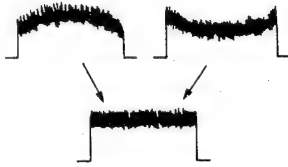
Zeile 23 beobachten / wenn nur  
halbe Amphitode (oder schwarzes Streifen  
an oberem Bildrand  
RV 48 V17 Board falsch eingestellt  
4-6-2 / Seite 4-36

To be extended; VA-37 board

Preparation; • Set the iris control to "CLOSE"

- GAIN selector (side panel) → "18"
- ENC/REGI selector (side panel) → "REGI"
- Adjust the PEDESTAL control (side panel) so that the pedestal level is approx. 70mV.

- 4-6-2 / Seite 4-36

Switches Setting (side panel)		Adjusting Point/VA-37 board			
		H SAW	V SAW	H PARA	V PARA
G	G/OFF/-G → G R/OFF/B → OFF	RV32	RV17	RV39	RV26
R	G/OFF/-G → OFF R/OFF/B → R	RV31	RV16	RV38	RV25
B	G/OFF/-G → OFF R/OFF/B → B	RV33	RV18	RV40	RV27
TEST OUT terminal					

#### 4-4-10. White Shading Adjustment

**Note;** Be sure to complete 4-4-6. Modulator Balance Adjustment, or this adjustment will affect the black shading adjustment.

Object; White Window Chart

Equipment; Waveform Monitor

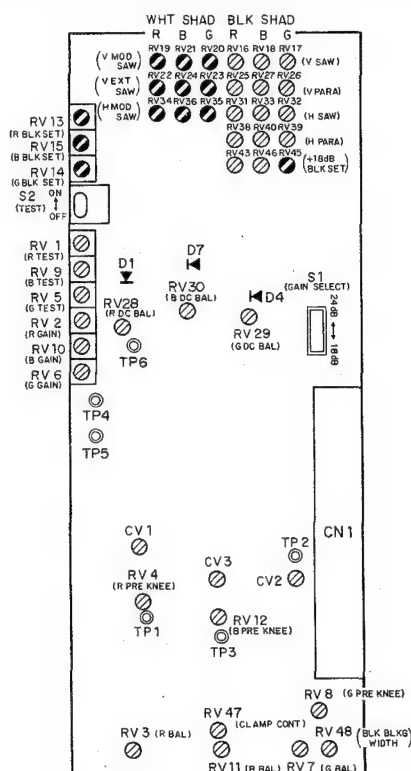
To be extended; VA-37 board

Preparation; • ENC/REGI selector (side panel) → "REGI"  
• S5 (WHITE CLIP & KNEE)/PR-78 board → "OFF"

1. Set the zoom control at TELE and shoot the white area of white window chart.
2. Adjust the iris control so that the video level at the TEST OUT terminal is 0.7 V.
3. When the shading occurs, adjust the respective RV controls so that the waveform is flat as follows.

**Note;** When using the lens with the EXTENDER attached, carry out the V EXT SAW adjustment. Before this adjustment, set the EXT lever of lens at X2 position and adjust the iris control so that the video level at TEST OUT terminal is 0.7 V. After this adjustment is completed, set the EXT lever at X1 position.

	Switches Setting (side panel)	Adjusting Point/VA-37 board		
		H MOD SAW	V MOD SAW	V EXT SAW
G	G/OFF/-G → G R/OFF/B → OFF	RV35	RV20	RV23
R	G/OFF/-G → OFF R/OFF/B → R	RV34	RV19	RV22
B	G/OFF/-G → OFF R/OFF/B → B	RV36	RV21	RV24
TEST OUT terminal				



#### 4-4-11. Black Set • Pedestal Adjustment

**Note:** Be sure to reset the compensation data in the microcomputer, or this adjustment will become invalid. (See 4-1-3. Precautions on Adjustments)

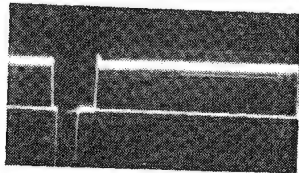
Equipment; Waveform Monitor, Vectorscope (MAX GAIN)

To be extended; VA-37 board

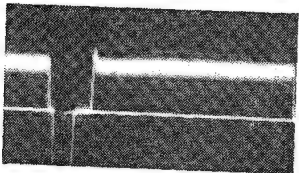
Precaution; • Set the iris control to "CLOSE".  
• ENC/REGI selector (side panel) → "REGI"  
• G/OFF/-G selector (side panel) → "G"  
• R/OFF/B selector (side panel) → "OFF"  
• Adjust the PEDESTAL control (side panel) so that the pedestal level is approx. 70mV.

1. Adjust ⚙ RV14 **G BLK SET**/VA-37 board so that the pedestal level does not change even if the GAIN selector is set to "0" or "9".
2. Adjust ⚙ RV45 (G +18dB BLK SET)/VA-37 board so that the pedestal level does not change even if the GAIN selector is set to "0" or "18".

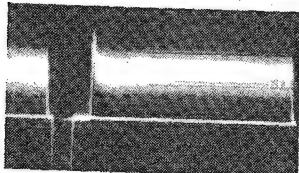
0dB



9dB

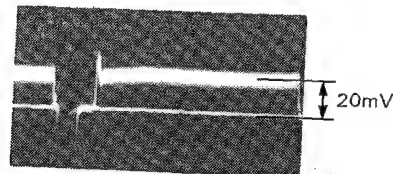


18dB

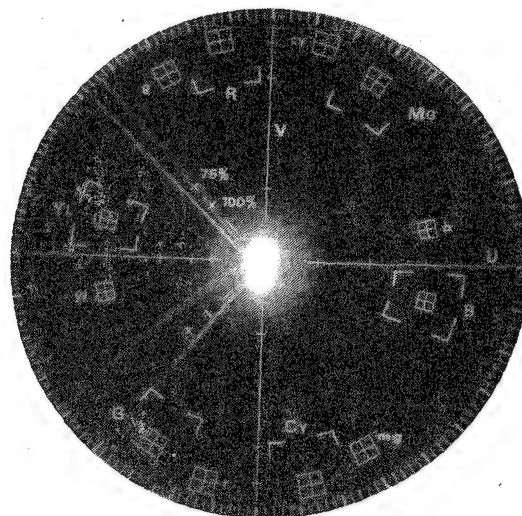


3. • GAIN selector → "0"  
• Extend the PR-78 board.
4. Adjust PEDESTAL control (side panel) so that the DC level at TP6/extension board is  $2.5 \pm 0.1$  Vdc.
5. • Extend the VA-37 board.

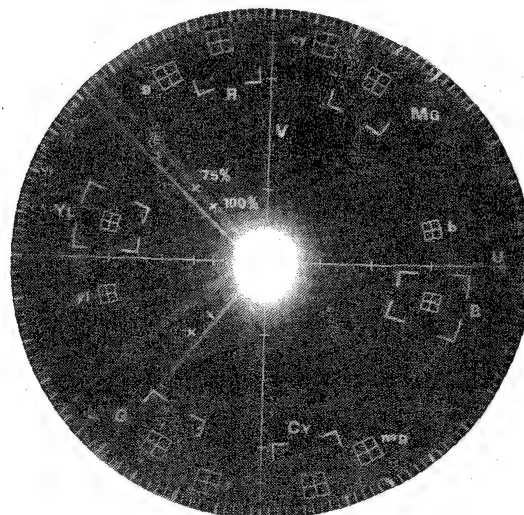
6. Adjust ⚙ RV12 **G PED** /PR-78 board so that the pedestal level is 20mV.



7. • ENC/REGI selector (side panel) → "ENC"
8. Adjust ⚙ RV3 **R PED** and ⚙ RV21 **B PED** /PR-78 board so as to center the beam spot on the vectorscope.



9. • GAIN selector (side panel) → "9"
10. Adjust ⚙ RV13 **R BLK SET** and ⚙ RV15 **B BLK SET** /VA-37 board so as to center the beam spot on the vectorscope.





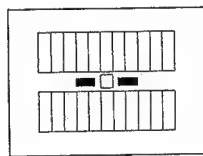
#### 4-4-12. Flare Adjustment

Object; Gray Scale Chart

Equipment; Waveform Monitor

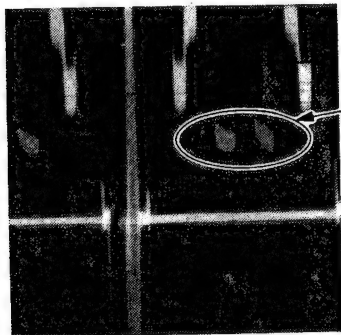
Preparation; • As shown below, stick non-reflective and non-photoconductive cloth (such as velvet) as a reference of the black level.  
• ENC/REGI selector (side panel) → "ENC"  
• RV11 **G FLR**/PR-78 board → fully counterclockwise

1. Adjust the zoom control so that the gray scale chart frame touches the underscanned picture frame on the monitor.



Monitor Screen

2. Adjust the iris control so that the white level at TEST OUT terminal is 0.7V.
3. Open the iris control 1 more stop than F value of Step 2.
4. Adjust RV2 **R FLR** and RV20 **B FLR**/PR-78 board so that the carrier leakage of black level is minimized.



Minimize the carrier leakage

Besser zuerst auf "Reg" und nur Grün mit RV11 einstellen, danach auf Enc. und RV2/20 nachziehen auf Minimum carrier leakage

#### 4-4-13. PR Gain Adjustment

**Note;** Be sure to complete 4-4-7. Gamma Balance Adjustment, or this adjustment will become invalid.

Equipment; Oscilloscope, Waveform Monitor

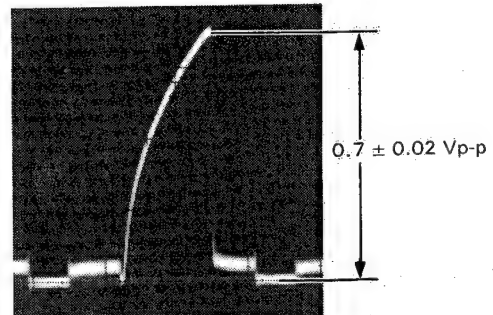
To be extended; PR-78 board

Preparation; • S2 **TEST**/VA-37 board → "ON"

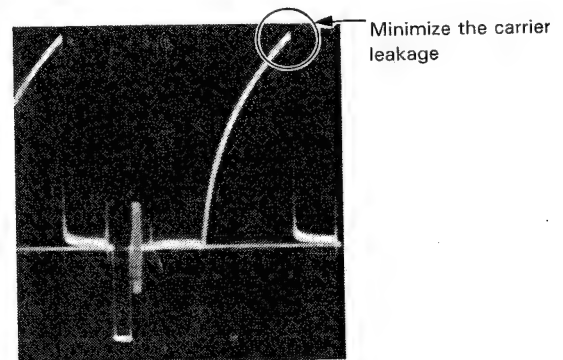
- S1 (R γ) } /PR-78 board → "ON"
- S2 (G γ) }
- S3 (B γ) }
- S5 (WHITE CLIP & KNEE)/PR-78 board → "OFF"

Trigger; HD (TP25/extension board)

1. Adjust RV18 **G GAIN**/PR-78 board so that the peak level at TP17/extension board is  $0.7 \pm 0.02$  Vp-p.



2. • ENC/REGI selector (side panel) → "ENC"
3. Adjust RV9 **R GAIN** and RV28 **G GAIN** so that the carrier leakage of the peak level at TEST OUT terminal is minimized.



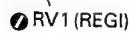
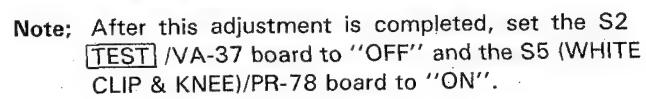
Minimize the carrier leakage

**Note;** After this adjustment is completed, set the S2 **TEST** switch/VA-37 board to "OFF" and the S5 (WHITE CLIP & KNEE)/PR-78 board to "ON".

#### 4. ALIGNMENT

Equipment; Waveform Monitor

1. Adjust  RV1 (REG1)/RG-14P board so that the peak level at TEST OUT terminal is  $0.7 \pm 0.01V$ .



#### 4-4-15. EN Y Level Adjustment

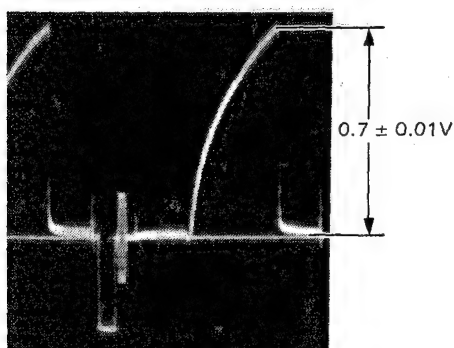
**Note:** Be sure to complete 4-4-14. REGI Video Level Adjustment, or this adjustment will become invalid.

Equipment; Waveform Monitor

To be extended; EN-41P board

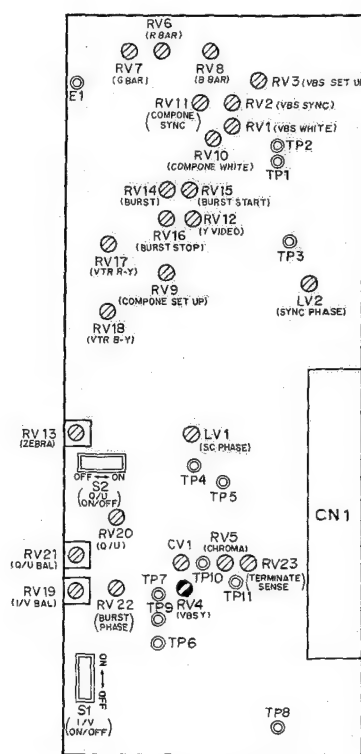
Preparation; • ENC/REGI selector (side panel) → "REGI"  
 • S2 **TEST** switch/VA-37 board → "ON"  
 • S5 (WHITE CLIP & KNEE)/PR-78 board → "OFF"

1. Adjust RV4 (VBS Y)/EN-41P board so that the peak level at TEST OUT terminal is  $0.7 \pm 0.01V$ .



**Note:** After this adjustment is completed, set the switches as follows.

- S2 **TEST** switch/VA-37 board → "OFF"
- S5 (WHITE CLIP & KNEE)/PR-78 board → "OFF"



EN-41/41P BOARD (COMPONENT SIDE)



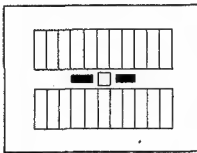
#### 4-4-16. Gamma Correction Adjustment

**Note;** Be sure to complete 4-4-13. PR Gain Adjustment, or this adjustment will become invalid.

Object; Gray Scale Chart  
Equipment; Waveform Monitor  
To be extended; PR-78 board

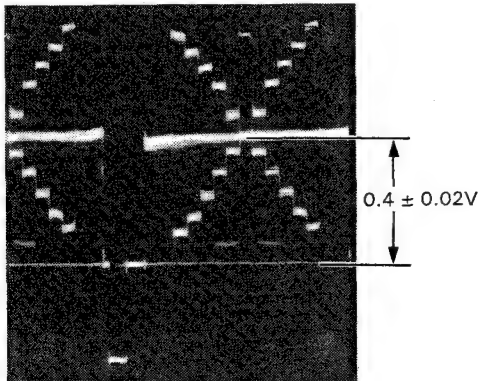
Preparation; • ENC/REGI selector (side panel) → "REGI".  
• G/OFF/-G selector (side panel) → "G"  
• R/OFF/B selector (side panel) → "OFF"  
• S1 (R  $\gamma$ ) } /PR-78 board → "ON"  
• S2 (G  $\gamma$ ) }  
• S3 (B  $\gamma$ ) }  
• S5 (WHITE CLIP & KNEE)/PR-78 board → "OFF"

1. Adjust the zoom control so that the gray scale chart frame touches the underscanned picture frame on the monitor.

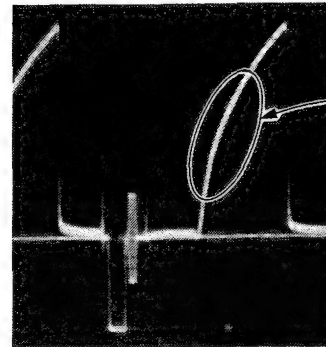


Monitor Screen

2. Adjust the iris control so that the white level at TEST OUT terminal is 0.7 V.
3. Adjust RV17 (G  $\gamma$  CORR)/PR-78 board so that the cross point level of the waveform signal at TEST OUT terminal is  $0.4 \pm 0.02V$ .

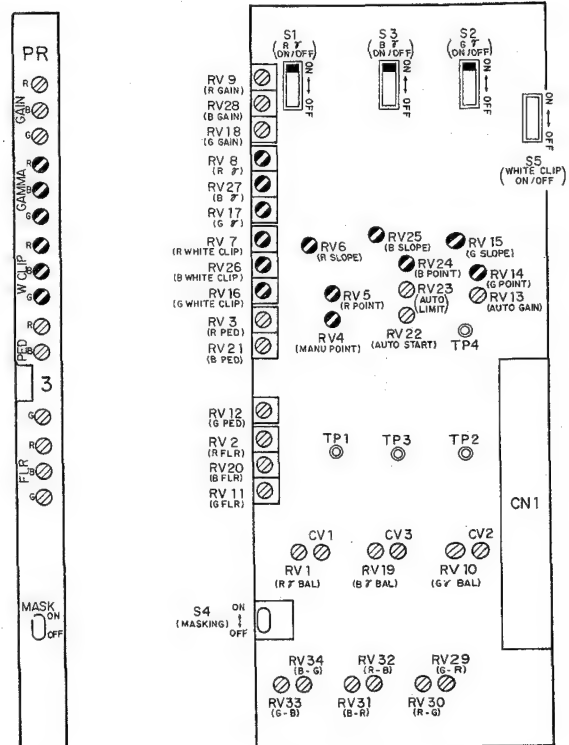


4. • ENC/REGI selector (side panel) → "ENC"  
• S2 **TEST** switch/VA-37 board → "ON"
5. Adjust RV8 (R  $\gamma$  CORR) and RV27 (B  $\gamma$  CORR)/PR-78 board so that the carrier leakage at TEST OUT terminal is minimized.



Minimize the carrier leakage

**Note;** After this adjustment is completed, set the S2 **TEST**/VA-37 board to "OFF" and S5 (WHITE CLIP & KNEE)/PR-78 board to "ON".



PR-78 BOARD (PANEL SIDE)

PR-78 BOARD (COMPONENT SIDE)

#### 4-4-17. Knee • White Clip Adjustment

Equipment; Waveform Monitor, Oscilloscope (DC MODE)

To be extended; PR-78 board

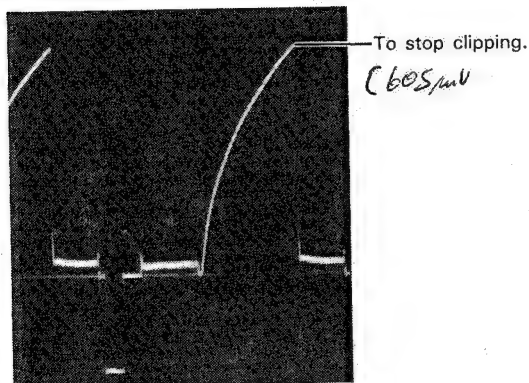
Preparation; • OUTPUT/DCC selector (side panel) →

- ENC/REGI selector (side panel) → "CAM/OFF"
- G/OFF/-G selector (side panel) → "G"
- R/OFF/B selector (side panel) → "OFF"
- S2 **TEST** switch/VA-37 board → "ON"
- S1 (R γ)
- S2 (G γ) } /PR-78 board → "ON"
- S3 (B γ)
- S5 (WHITE CLIP & KNEE)/PR-78 board → "ON"

- ⌚ RV14 (G POINT) } /PR-78 board → mechanical center
- ⌚ RV5 (R POINT)
- ⌚ RV24 (B POINT)
- ⌚ RV15 (G SLOPE) } /PR-78 board → fully clockwise
- ⌚ RV6 (R SLOPE)
- ⌚ RV25 (B SLOPE)
- ⌚ RV16 (G WHITE CLIP) } /PR-78 board → fully counter-clockwise
- ⌚ RV7 (R WHITE CLIP)
- ⌚ RV26 (B WHITE CLIP)

##### \* Manual Knee • White Clip Adjustment

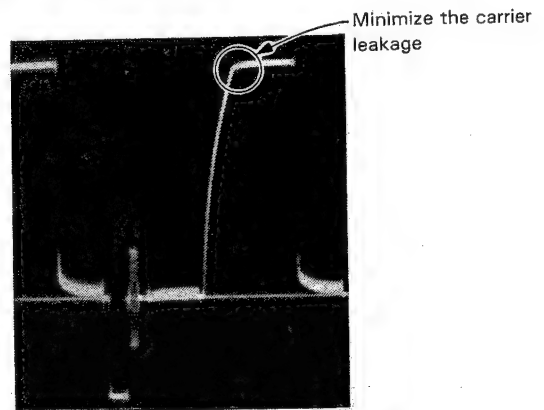
1. Turn ⌚ RV4 (MANU POINT)/PR-78 board from the rightmost position counterclockwise slowly until the TEST SAW waveform stops clipping.



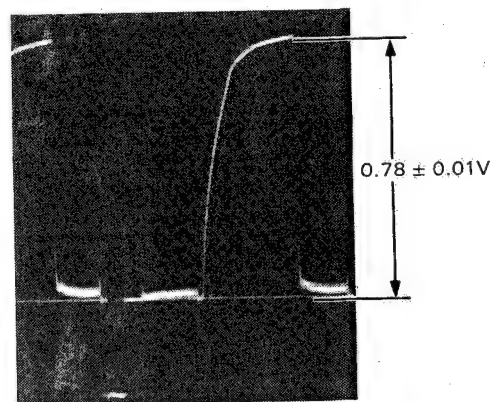
2. • ENC/REGI selector (side panel) → "ENC"
- GAIN selector (side panel) → "9"

Alle Einstellungen beeinflussen die DCC  
Nach Gamma / Knee / White Clip  
Auf jeden Fall einstellen (Punkt 12-15)

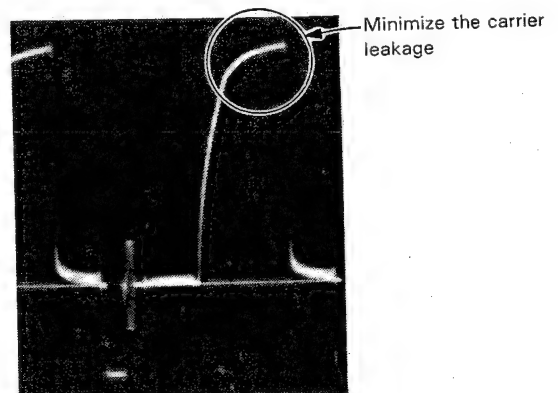
3. Adjust ⌚ RV5 (R POINT) and ⌚ RV24 (B POINT)/PR-78 board so that the carrier leakage at the knee point of the TEST SAW waveform is minimized.



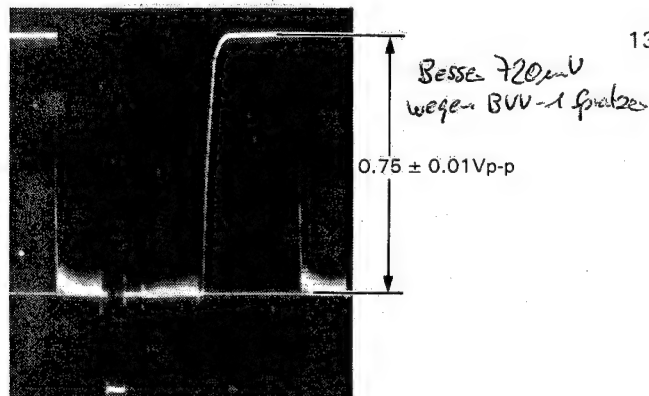
4. • ENC/REGI selector (side panel) → "REGI"
5. Adjust ⌚ RV15 (G SLOPE)/PR-78 board so that the peak level of the TEST SAW waveform is  $0.78 \pm 0.01V$ .



6. • ENC/REGI selector (side panel) → "ENC"
7. Adjust ⌚ RV6 (R SLOPE) and ⌚ RV25 (B SLOPE)/PR-78 board so that the carrier leakage of the TEST SAW waveform is minimized.

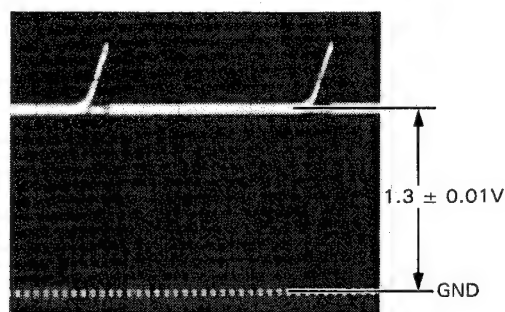


8. • ENC/REGI selector (side panel) → "REGI"
- GAIN selector (side panel) → "18"
9. Adjust ● RV16 (G-WHITE CLIP)/PR-78 board so that the TEST SAW waveform clips at  $0.75 \pm 0.01V_{p-p}$ .

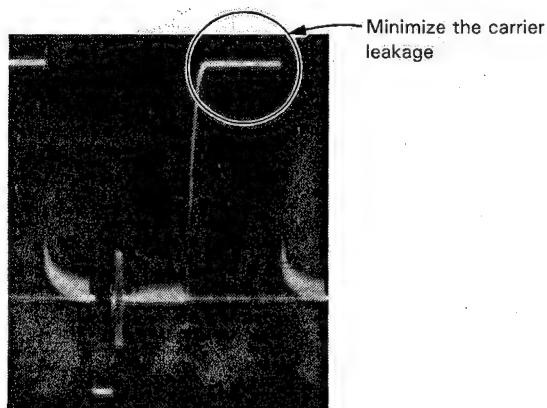


\* Auto Knee Adjustment

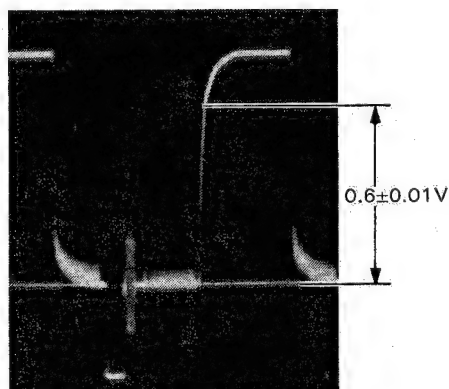
12. • GAIN selector (side panel) → "0"
- OUTPUT/DCC selector (side panel) → "CAM/ON"
- ENC/REGI selector (side panel) → "ENC"
- ● RV23 (AUTO LIMIT)/PR-78 board → mechanical center
13. Adjust ● RV22 (AUTO START)/PR-78 board so that the DC level at TP4/PR-78 board is  $1.3 \pm 0.01 V$ .



10. • ENC/REGI selector (side panel) → "ENC"
11. Adjust ● RV7 (R WHITE CLIP) and ● RV26 (B WHITE CLIP)/PR-78 board so that the carrier leakage of the TEST SAW waveform is minimized.



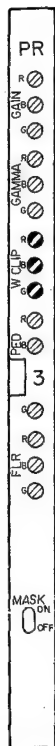
14. • GAIN selector (side panel) → "18"
15. Adjust ● RV13 (AUTO GAIN)/PR-78 board so that the knee point of the TEST SAW waveform is  $0.6 \pm 0.01V$ .



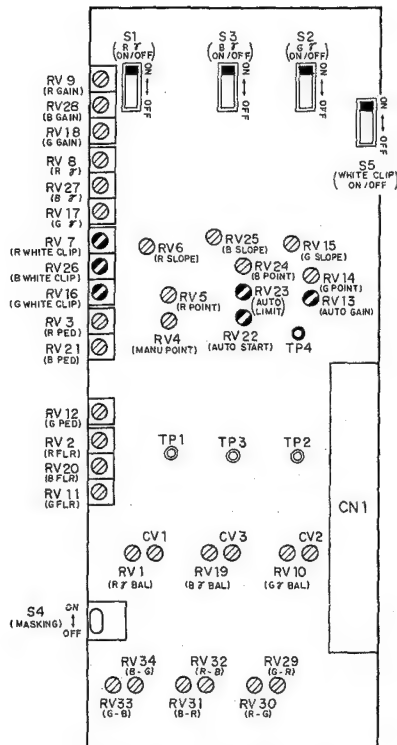
**Note:** After this adjustment is completed, set the switches as follows.

- GAIN selector (side panel) → "0"
- OUTPUT/DCC selector (side panel) → "CAM/OFF"
- S2 TEST/VA-37 board → "OFF"

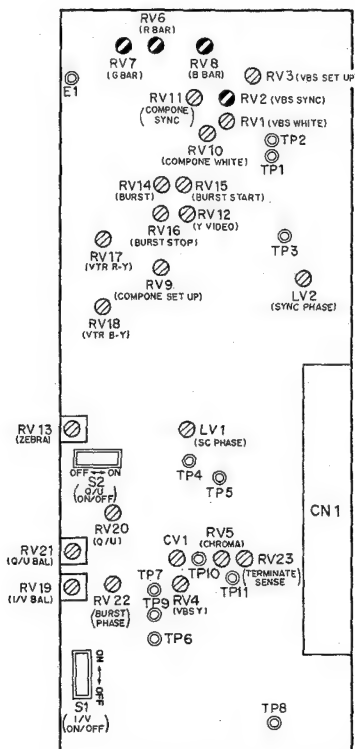
Nach DCC-Einstellung  
White-Balance im komprimierten  
Bereich überprüfen. evtl.  
RV5/24 (Poti nachziehen)



PR-78 BOARD  
(PANEL SIDE)



PR-78 BOARD (COMPONENT SIDE)



EN-41/41P BOARD (COMPONENT SIDE)

#### 4-4-18. Color-bar Adjustment

**Note;** Be sure to complete 4-4-15. EN Y Level Adjustment, or this adjustment will become invalid.

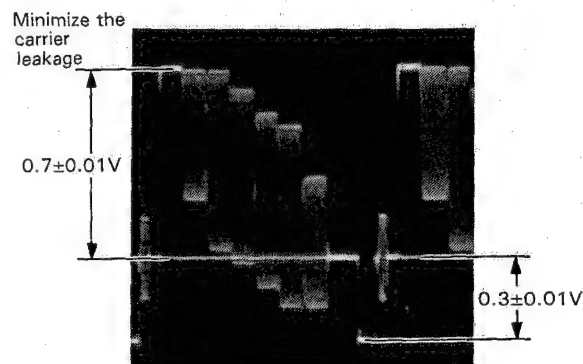
Equipment; Waveform Monitor

To be extended; EN-41P board

Preparation; • OUTPUT/DCC selector (side panel) → "BARS/OFF"  
• ENC/REGI selector (side panel) → "ENC"

1. Adjust RV7 (G BAR), RV6 (R BAR) and RV8 (B BAR)/EN-41P board so that the white level of the color-bar signal waveform is  $0.7 \pm 0.01V$  and the carrier leakage is minimized.

Adjust RV2 (VBS SYNC)/EN-41P board so that the SYNC level of the color-bar signal waveform is  $0.3 \pm 0.01V$ .



**Note;** After this adjustment is completed, set the OUTPUT/DCC selector (side panel) to "CAM/OFF".

#### 4-4-19. U.V. Gain Adjustment

Equipment; Vectorscope

To be extended; EN-41P board

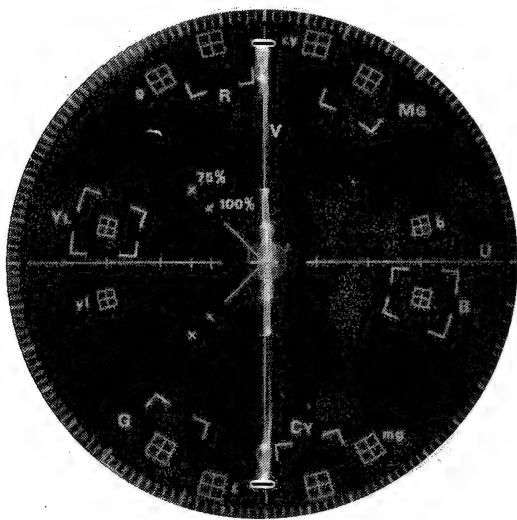
Preparation; • OUTPUT/DCC selector (side panel) → "CAM/OFF"

- S1 (V) → "ON" } /EN-41P board
- S2 (U) → "OFF" }

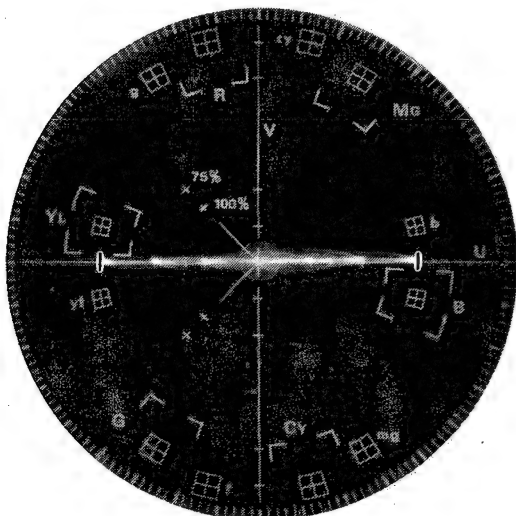
**Note;** After this adjustment is completed, set the switches as follows.

- OUTPUT/DCC selector (side panel) → "CAM/OFF"
- S1 (V) → "ON" } /EN-41P board
- S2 (U) → "ON" }

1. Adjust the PHASE control of the vectorscope so that the V signal is overlapped with the V axis on the vectorscope.
2. Adjust RV5 (VBS CHROMA)/EN-41P board so that the beam spots at both ends of the V signal are overlapped with the scale of the vectorscope.



3. • S1 (V) → "OFF" } /EN-41 board
- S2 (U) → "ON" }
4. Adjust the PHASE control of the vectorscope so that the U signal is overlapped with the U axis on the vectorscope.
5. Adjust RV20 (U)/EN-41P board so that the beam spots at both ends of the U signal are overlapped with the scale of the vectorscope.



#### 4-4-20. Burst Adjustment

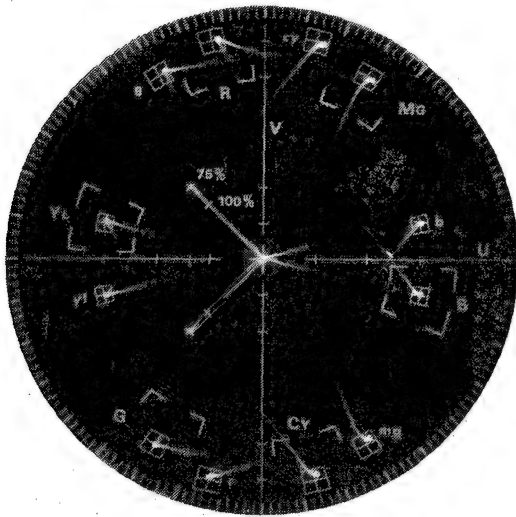
Equipment: Vectorscope

To be extended: EN-41P board

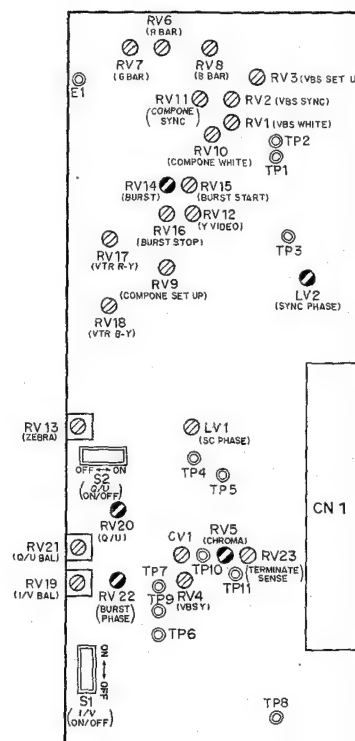
Preparation: OUTPUT/DCC selector (side panel)

→ "BARS/OFF"

1. Adjust the PHASE control of the vectorscope,  $\odot$  RV14 (BURST),  $\odot$  RV22 (BURST PHASE) and  $\odot$  LV2 (SC PHASE)/EN-41P board so that the beam spot of the burst signal is overlapped with the 75% scale on the vectorscope.



**Note:** After this adjustment is completed, set the OUTPUT/DCC selector (side panel) to "CAM/OFF".



EN-41/41P BOARD (COMPONENT SIDE)

#### 4-4-21. VTR Y Adjustment

Equipment: Oscilloscope

To be extended: EN-41P board

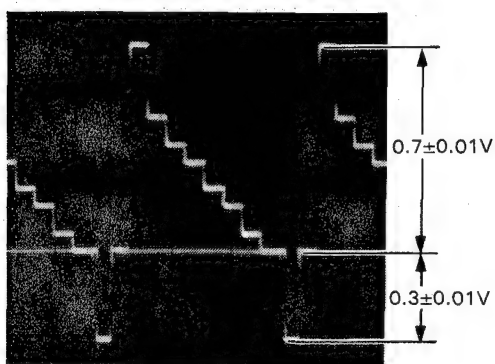
Preparation: OUTPUT/DCC selector (side panel)

→ "CAM/OFF"

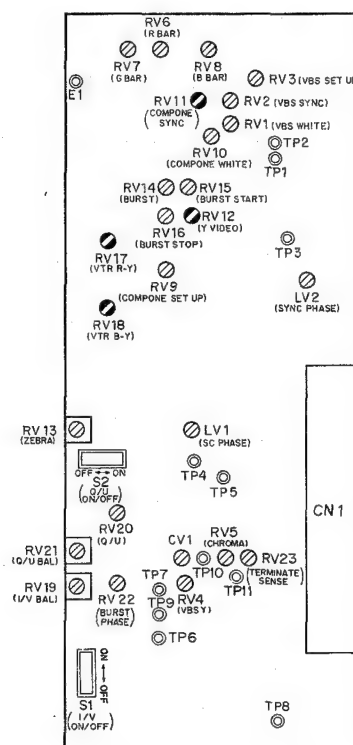
Test Point: TP21/extension board

Trigger: HD (TP34/extension board)

1. Adjust  $\odot$  RV12 (Y VIDEO)/EN-41P board so that the white level is  $0.7 \pm 0.01$  V.
2. Adjust  $\odot$  RV11 (COMPONE SYNC)/EN-41P board so that the SYNC level is  $0.3 \pm 0.01$  V.



**Note:** After this adjustment is completed, set the OUTPUT/DCC selector (side panel) to "CAM/OFF".



EN-41/41P BOARD (COMPONENT SIDE)

#### 4-4-22. VTR R-Y Adjustment

Equipment: Oscilloscope

To be extended: EN-41P board

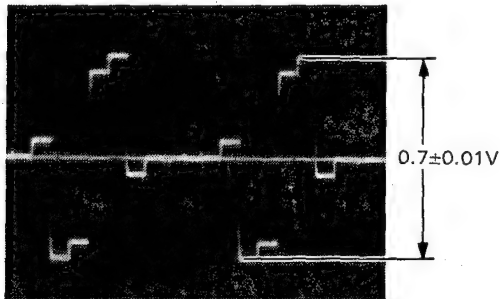
Preparation: OUTPUT/DCC selector (side panel)  
→ "BARS/OFF"

Test Point: TP19/extension board

Trigger: HD (TP34/extension board)

Adj. Point: ● RV17 (VTR R-Y)/EN-41P board

Spec.:  $0.7 \pm 0.01$  Vp-p



**Note:** After this adjustment is completed, set the OUTPUT/DCC selector (side panel) to "CAM/OFF".

#### 4-4-23. VTR B-Y Adjustment

Equipment: Oscilloscope

To be extended: EN-41P board

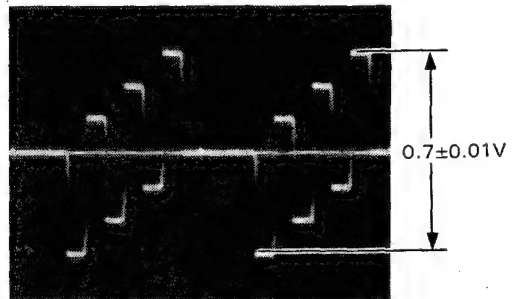
Preparation: OUTPUT/DCC selector (side panel)  
→ "BARS/OFF"

Test Point: TP18/extension board

Trigger: HD (TP34/extension board)

Adj. Point: ● RV18 (VTR B-Y)/EN-41P board

Spec.:  $0.7 \pm 0.01$  Vp-p



**Note:** After this adjustment is completed, set the OUTPUT/DCC selector (side panel) to "CAM/OFF".

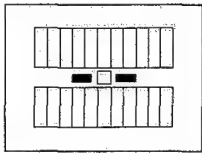
EBU-N10 → 525mV



4-4-24. Zebra Level Adjustment

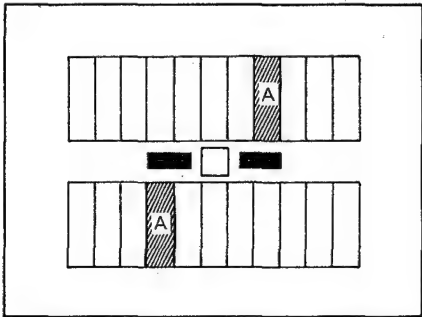
Object; Gray Scale Chart  
To be extended; EN-41 board  
Equipment; Waveform Monitor  
Preparation; • ENC/REGI selector (side panel) → "ENC"  
• TALLY/ZEBRA ON/OFF switch (viewfinder)  
→ "ZEBRA"

- 1. Adjust the zoom control so that the gray scale chart frame touches the underscanned picture frame on the monitor.



Monitor Screen

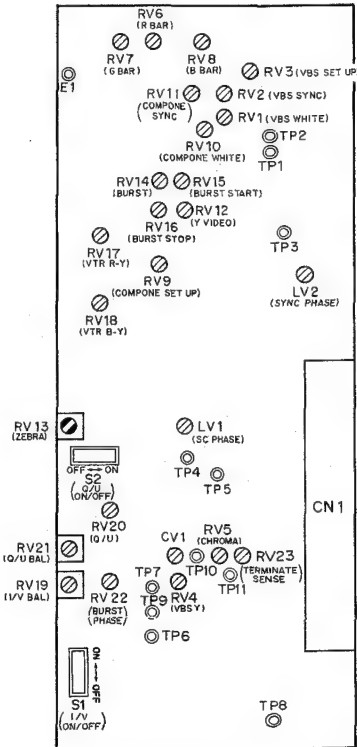
- 2. Adjust the iris control so that the white level at TEST OUT terminal is  $0.7 \pm 10\text{mV}$ .
- 3. Adjust RV13 (ZEBRA)/EN-41 board so that the striped pattern appears in the portion A of the VF screen as shown below.



VF Screen



EN-41P BOARD (PANEL SIDE)



EN-41/41P BOARD (COMPONENT SIDE)

## 4-5. DETAIL SIGNAL SYSTEM ADJUSTMENT

To be extended; IE-15P board

Preparation; • ENC/REGI selector (side panel) → "ENC"  
• S1 **DTL**/IE-15P board → "ON"

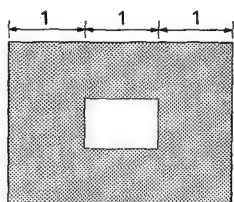
### 4-5-1. White Clip Adjustment

Object; White Window Chart

Equipment; Oscilloscope

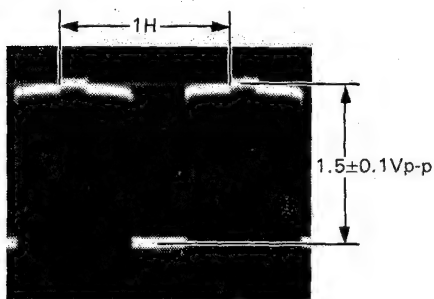
Preparation; • GAIN selector (side panel) → "9"

1. Adjust the zoom control and shoot the white window chart as shown below.



Monitor Screen

2. Open the lens iris slowly and Adjust **RV1** (MOD WHITE CLIP)/IE-15P board so that the waveform at TP6/extension board clips at  $1.5 \pm 0.1V_{p-p}$ .



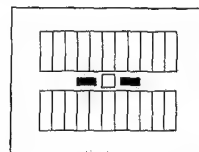
**Note:** After this adjustment is completed, set the GAIN selector (side panel) to "0"

### 4-5-2. V DTL Null Adjustment

Object; Gray Scale Chart

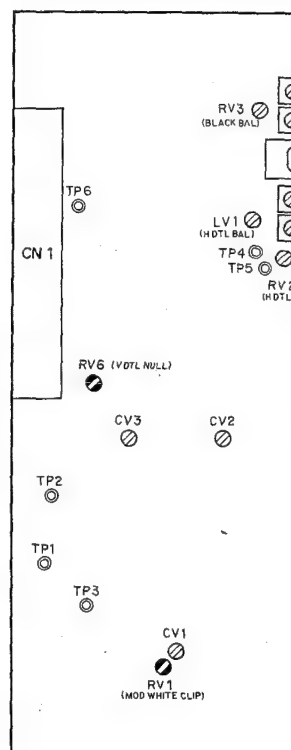
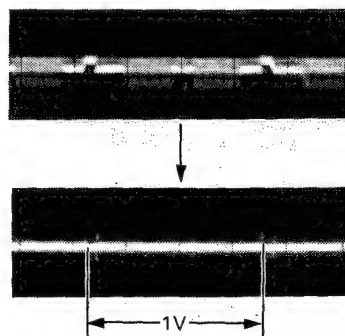
Equipment; Waveform Monitor, Oscilloscope

1. Adjust the zoom control so that the gray scale chart frame touches the underscanned picture frame on the monitor.

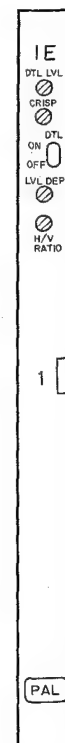


Monitor Screen

2. Adjust the iris control so that the white level at TEST OUT terminal is 0.7 V.
3. Adjust **RV6** (V DTL NULL)/IE-15P board so that the waveform at TP5/IE-15P board is flat.



IE-15/15P BOARD (COMPONENT SIDE)

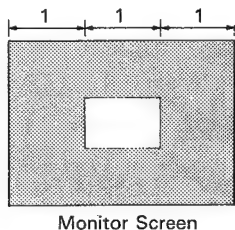


IE-15P BOARD (PANEL SIDE)

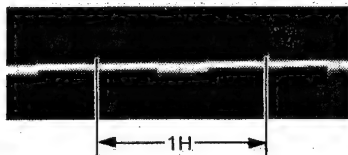
### 4-5-3. 1H, 2H DELAY Signal Phase Adjustment

Object; White Window Chart  
Equipment; Waveform Monitor, Oscilloscope

1. Adjust the zoom control and shoot the white window chart as shown below.



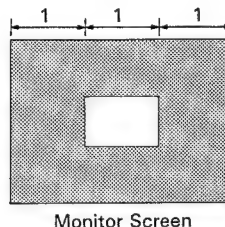
2. Adjust the iris control so that the white level at TEST OUT terminal is 0.7 V.
3. Adjust  $\odot$  CV2 (1H FREQ RESP) and  $\odot$  CV3 (2H FREQ RESP)/IE-15P board so that the waveform at TP5/IE-15P board is flat.



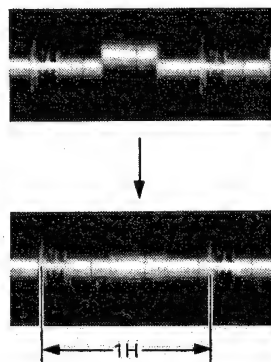
### 4-5-4. H DTL Adjustment

Object; White Window Chart  
Equipment; Waveform Monitor, Oscilloscope

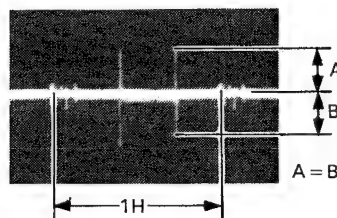
1. Adjust the zoom control and shoot the white window chart as shown below.



2. Adjust the iris control so that the white level at TEST OUT terminal is 0.7 V.
3. Adjust  $\odot$  RV2 (H DTL: NULL)/IE-15P board so that the waveform at TP4/IE-15P board is flat.



4.  $\odot$  RV5 DTL/IE-15P board  $\rightarrow$   $\odot$  fully clockwise
5. Adjust  $\odot$  LV1 (H DTL BAL)/IE-15P board so that the portion A and B of the waveform at TP4/IE-15P board are same in level.



**Note:** After adjustment is completed, be sure to carry out 4-5-5. Black Balance Adjustment.

#### 4-5-5. Black Balance Adjustment

Object; Gray Scale Chart

Equipment; Waveform Monitor, Oscilloscope

Preparation; ⚙ RV4 **CRISPENING** →

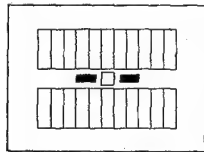
⌚ fully counterclockwise

⚙ RV5 **DTL** → ⌚ fully clockwise

⚙ RV8 **LEVEL DEPEND** →

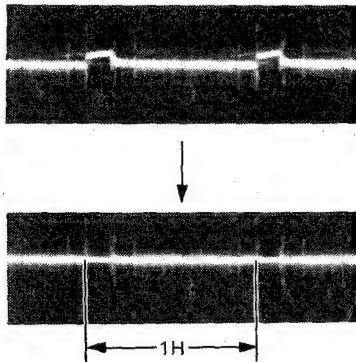
⌚ fully counterclockwise

1. Adjust the zoom control so that the gray scale chart frame touches the underscanned picture frame on the monitor.

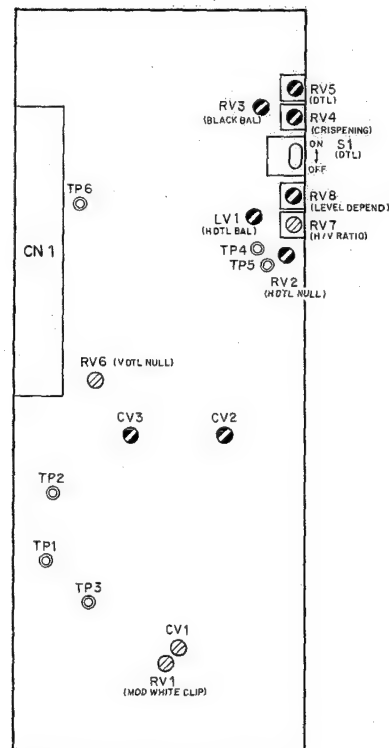


Monitor Screen

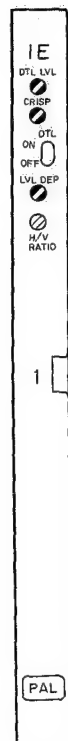
2. Adjust the iris control so that the white level at TEST OUT terminal is 0.7 V.
3. Adjust ⚙ RV3 (BLACK BAL)/IE-15P board so that the waveform at TP6/IE-15P board is flat.



**Note;** After adjustment is completed, be sure to carry out 4-5-6. Level Dependent Adjustment.



IE-15/15P BOARD (COMPONENT SIDE)

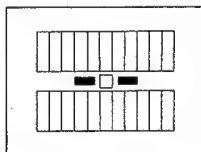


IE-15P BOARD (PANEL SIDE)

#### 4-5-6. Level Dependent Adjustment

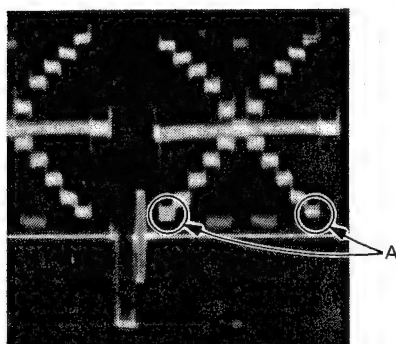
Object; Gray Scale Chart  
 Equipment; Waveform Monitor  
 Preparation; • ENC/REGI selector (side panel) → "REGI"  
 • G/OFF/-G selector (side panel) → "G"  
 • R/OFF/B selector (side panel) → "OFF"

1. Adjust the zoom control so that the gray scale chart frame touches the underscanned picture frame on the monitor.



Monitor Screen

2. Adjust the iris control so that the white level at TEST OUT terminal is 0.7 V.
3. Adjust ⚙ RV8 [LEVEL DEPEND] /IE-15P board so that the detail signal is not added to the portion A of the waveform at TEST OUT terminal.

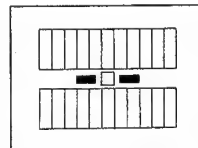


**Note;** After adjustment is completed, be sure to carry out 4-5-7. H/V RATIO • Detail Level Adjustment.

#### 4-5-7. H/V RATIO • Detail Level Adjustment

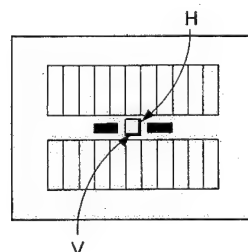
Object; Gray Scale Chart  
 Equipment; Waveform Monitor  
 Preparation; ⚙ RV5 [DTL] /IE-15P board → fully clockwise

1. Adjust the zoom control so that the gray scale chart frame touches the underscanned picture frame on the monitor.



Monitor Screen

2. Adjust the iris control so that the white level at TEST OUT terminal is 0.7 V.
3. Adjust ⚙ RV7 (H/V RATIO) /IE-15P board so that the H and V detail amounts to be added are equivalent.



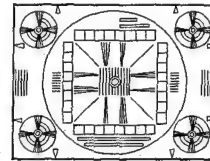
4. Set the detail level according to the users' request by adjusting ⚙ RV5 [DTL] /IE-15P board.

Multiburst Chart  
Detail on/maximum  
B/W Monitor  
auf minimum Ablesig  
im 5MHz Bereich.

#### 4-5-8. Resolution Adjustment

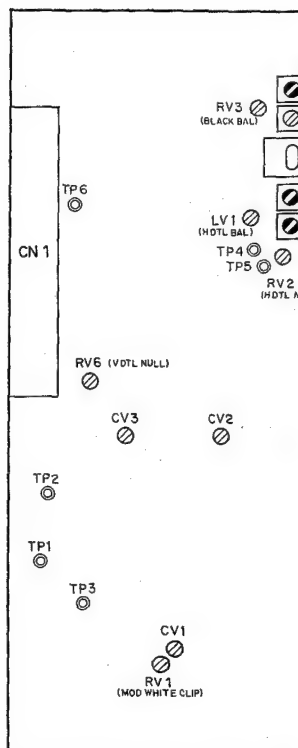
Object; Resolution Chart  
Equipment; Waveform Monitor

1. Adjust the zoom control so that the resolution chart frame touches the underscanned picture frame on the monitor.

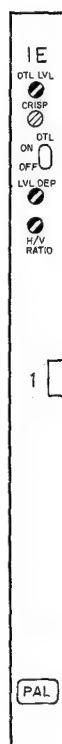


Monitor Screen

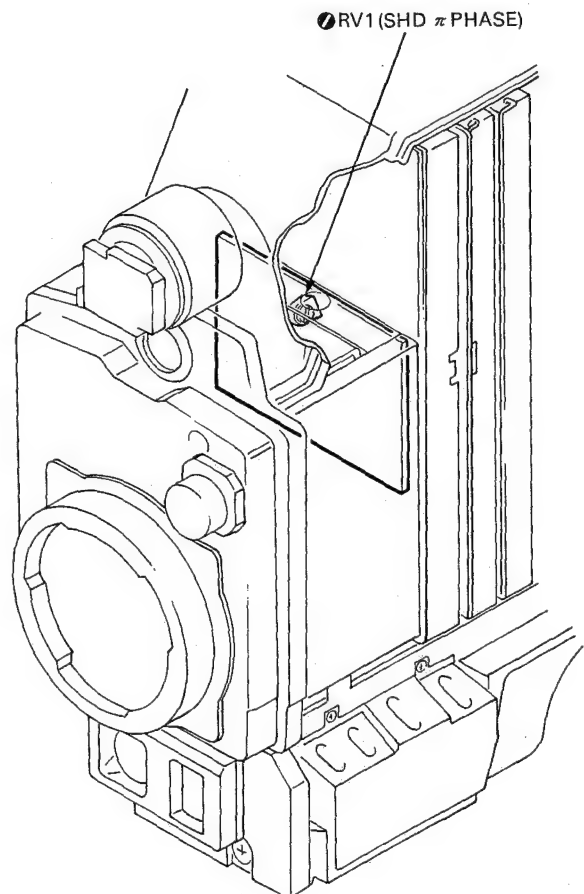
2. Adjust the iris control so that the white level at TEST OUT terminal is 0.7 V.
3. Pan the camera slightly so as to obtain the best resolution.
4. Adjust  $\text{RV1}$  (SHD  $\pi$  PHASE)/TG-21P board so as to obtain the best obtained.
5. Repeat Step 3 and Step 4 until the resolution of more than 550 TV lines can be seen on the monitor.



IE-15/15P BOARD (COMPONENT SIDE)



IE-15P BOARD (PANEL SIDE)



## 4-6. AUTOMATIC CONTROL SYSTEM ADJUSTMENT

### 4-6-1. Power Save Adjustment

Equipment; Digital Voltmeter

To be extended; EN-41P board

Test Point; Pin 5 of IC12, or TP11 (GND:E1)/EN-41P board

Adj. Point; ⚙ RV23 (TERMINATE SENSE)/EN-41P board

Spec.;  $-0.45 \pm 0.1V_{dc}$

**Note;** Confirm that the waveform at TP8/extension board is fed when the ENC/REGI selector (side panel) is set to "ENC" and it is not fed when the selector is set to "REGI".

### 4-6-2. Black Width Adjustment

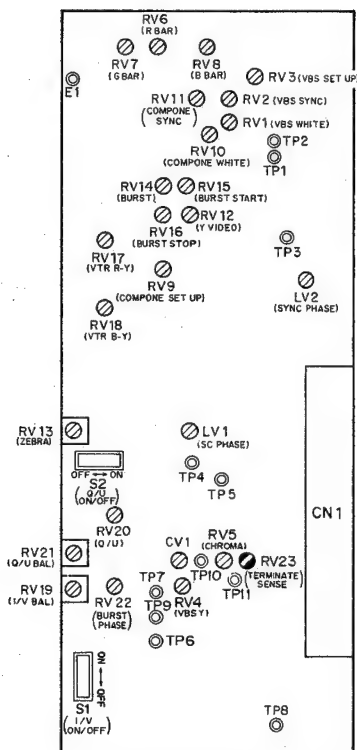
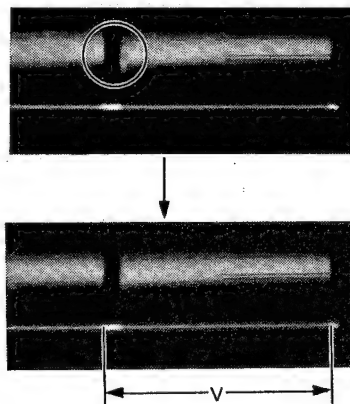
Equipment; Waveform Monitor

To be extended; VA-37 board

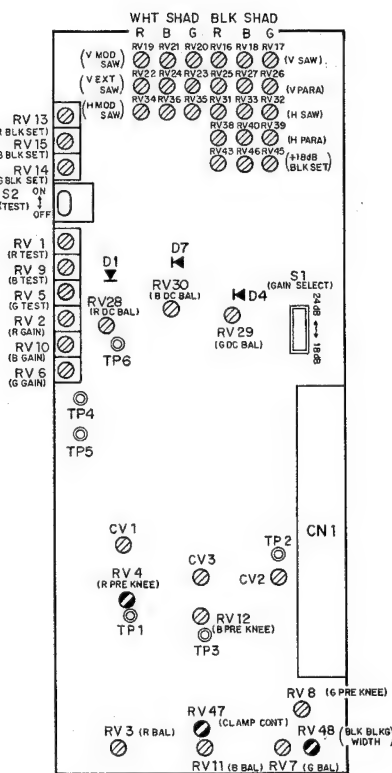
Preparation; • Set the iris control to "CLOSE".

- Adjust the CONTRAST control of the monitor so as to obtain the most contrasty picture.
- ENC/REGI selector (side panel) → "REGI"
- G/OFF/-G selector (side panel) → "G"
- R/OFF/B selector (side panel) → "OFF"

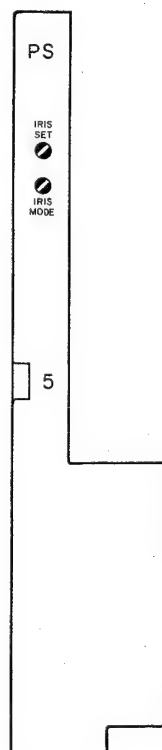
1. Turn ⚙ RV48 (BLK WIDTH)/VA-37 board from the rightmost position counterclockwise slowly until the waveform is flat.



EN-41/41P BOARD (COMPONENT SIDE)



VA-37 BOARD (COMPONENT SIDE)



PS-129 BOARD (PANEL SIDE)

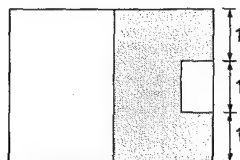
#### 4-6-3. Clamp Control Adjustment

Object; White Window Chart

To be extended; VA-37 board

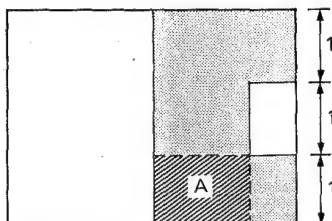
Preparation; • AUTO/MANU switch (Pattern Box) → "AUTO"

1. Adjust the zoom control and shoot the white window chart as shown below.



Monitor Screen

2. • Set the iris control to F2.8.  
• GAIN selector (side panel) → "18"  
• RV47 (CLAMP CONT)/VA-37 board → fully clockwise
3. When the portion A of the monitor is colored, turn RV47 (CLAMP SENSE)/VA-37 board counterclockwise slowly until it is not colored.



Monitor Screen

**Note;** After this adjustment is completed, set the GAIN selector (side panel) to "0".

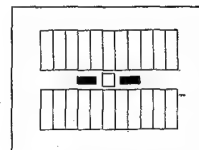
#### 4-6-4. Auto Iris Adjustment

Object; Gray Scale Chart

Equipment; Waveform Monitor

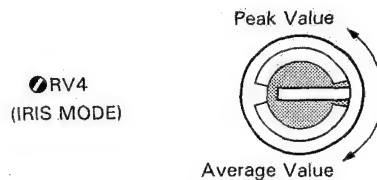
Preparation; • IRIS AUTO/MANU selector (lens) → "AUTO"

1. Adjust the zoom control so that the gray scale chart frame touches the underscanned picture frame on the monitor.

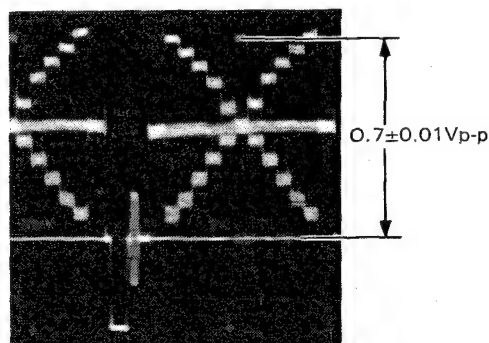


Monitor Screen

2. The iris control operation is controlled by mixing the peak level of the video signal with the average of it. That mixing ratio can be set by adjusting RV4 (IRIS MODE)/PS-129 board. Set the mode according to the users' request. Normally set it at the center.



3. Adjust RV5 (IRIS SET)/PS-129 board so that the white level at TEST OUT terminal is  $0.7 \pm 0.01 V_{p-p}$ .





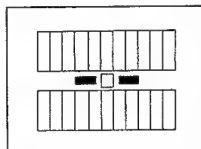
#### 4-6-5. LOW VIDEO Adjustment

Object; Gray Scale Chart

Equipment; Waveform Monitor

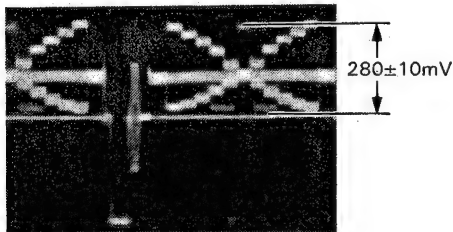
Preparation; ENC/REGI selector (side panel) → "ENC"

1. Adjust the zoom control so that the gray scale chart frame touches the underscanned picture frame on the monitor.

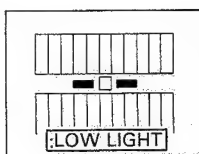


Monitor Screen

2. Adjust the iris control so that the white level at TEST OUT terminal is  $280 \pm 10\text{mV}$ .



3. Turn RV2 (LOW VIDEO)/AT-42 board from the left-most position clockwise slowly until the "LOW LIGHT" is displayed on the VF screen.



VF Screen

#### 4-6-6. Character Size Adjustment

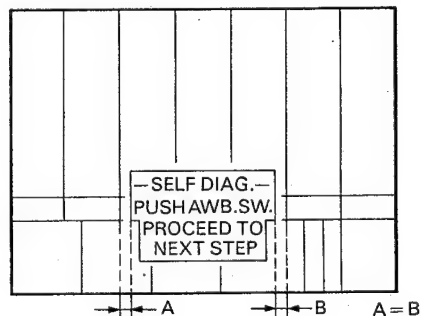
Preparation; • OUTPUT/DCC selector (side panel) →

"BARS/OFF"

• ENC/REGI selector (side panel) → "ENC"

• S1 (CHECK)/AT-42 board → "ON"

1. Adjust RV1 (CHR SIZE)/AT-42 board so that the characters are displayed in the center of VF screen.



VF Screen

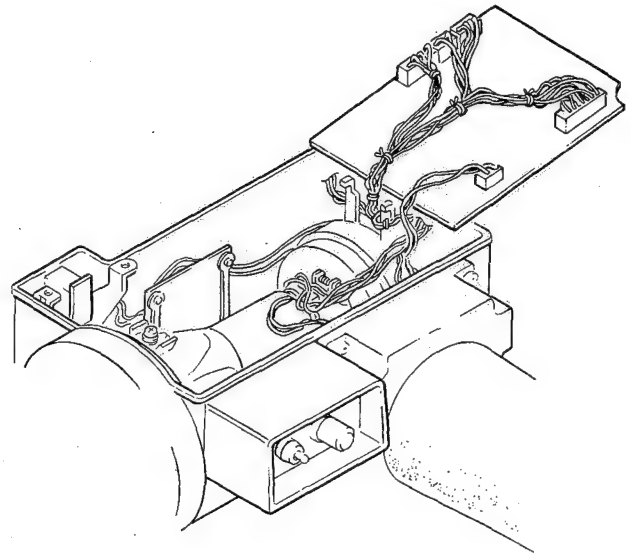
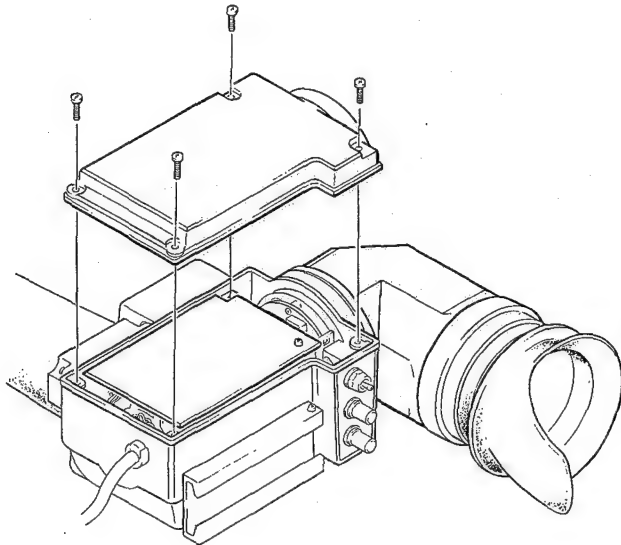
**Note;** After this adjustment is completed, set the S1 (CHECK)/AT-42 board to "OFF (OPEN)"

## 4-7. VIEWFINDER SYSTEM ADJUSTMENT

**Note;** Be sure to adjust the camera completely, or the following adjustments will become invalid.

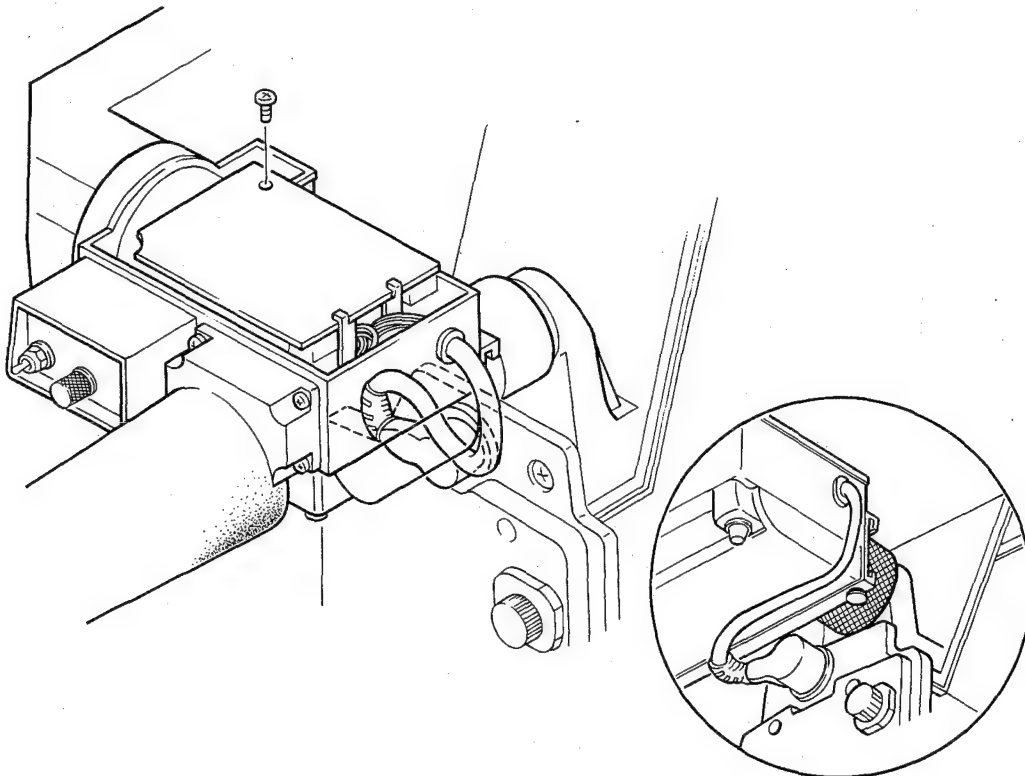
Preparation; • Set the power switch of AC Adaptor (AC-500CE or CMA-8CE) to "OFF".  
• Remove the viewfinder from the camera and remove the VF cover.

• Turn the component side of VF-26 board upwards for adjustments as shown below.



• Set the power switch of AC Adaptor (AC-500CE or CMA-8CE) to "ON".

• Install the viewfinder to be turned upside down on the camera.



#### 4-7-1. Vertical Hold Adjustment

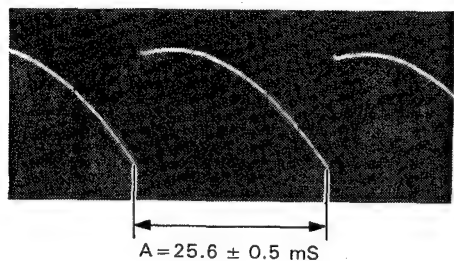
Equipment; Oscilloscope

Preparation; • Pull the EN-41P board out of the camera.  
• Set  $\odot$  RV9 (V SIZE)/VF-26 board to the mechanical center unless it is marked.

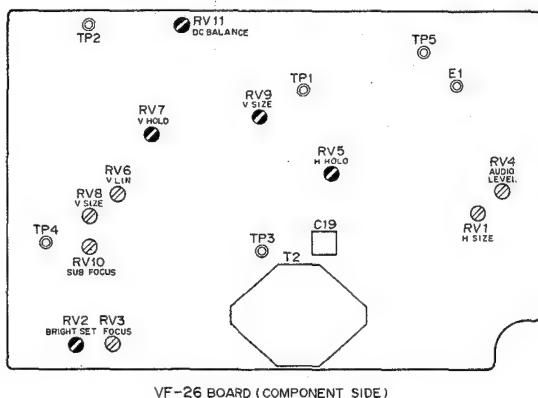
Test Point; TP4 (GND:E1)/VF-26 board

Adj. Point;  $\odot$  RV7 (V HOLD)/VF-26 board

Spec.;  $A = 25.6 \pm 0.5 \text{ mS}$



**Note;** After this adjustment is completed, insert the EN-41P board into the camera.



#### 4-7-2. Flyback Pulse Width Adjustment

**Note;** Perform this adjustment only when the T2 (FLYBACK)/VF-26 board is replaced.

Equipment; Oscilloscope (AC MODE)

Preparation; • BRIGHT control (viewfinder) →

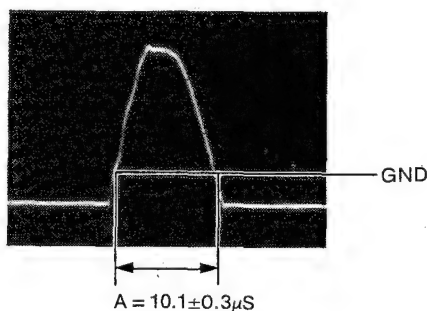
$\odot$  fully counterclockwise

• CONTR control (viewfinder) →

$\odot$  fully counterclockwise

Test Point; TP3 (GND:E1)/VF-26 board

Spec.;  $A = 10.1 \pm 0.3 \mu\text{S}$



1. When the flyback pulse width is out of the specification, replace C19/VF-26 board with a capacitor listed in the following table so that the pulse width meets the specification.

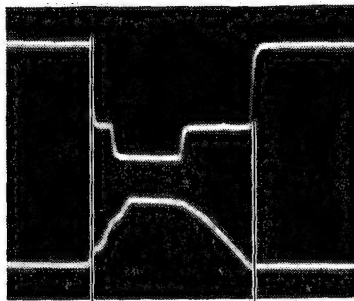
C19	1-136-306-11	0.0039 $\mu\text{F}$
	1-136-307-11	0.0043 $\mu\text{F}$
	1-136-287-11	0.0047 $\mu\text{F}$
	1-136-288-11	0.0051 $\mu\text{F}$
	1-136-289-11	0.0056 $\mu\text{F}$
	1-136-290-11	0.0062 $\mu\text{F}$
	1-136-291-11	0.0068 $\mu\text{F}$
	1-136-292-11	0.0075 $\mu\text{F}$
	1-136-293-11	0.0082 $\mu\text{F}$

### 4-7-3. Horizontal Hold Adjustment

Equipment; Waveform Monitor, Oscilloscope

Preparation; • Connect the CH1 of the oscilloscope to TP1 (GND:E1)/VF-26 board and CH2 to TP3 (GND:E1)/VF-26 board.  
• Shoot the overall white pattern and adjust the iris control so that the white level at TEST OUT terminal is 100IRE.

Adj. Point; ① RV5 (H HOLD)/VF-26 board  
Spec.;



Adjust so that the lower phase corresponds with the upper.

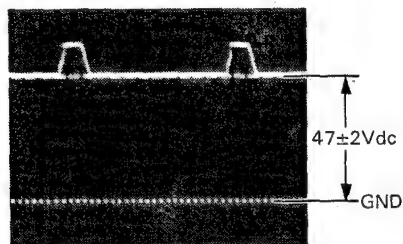
### 4-7-4. DC Balance Adjustment

Equipment; Oscilloscope (DC MODE)

Preparation; Set the iris control to "CLOSE".

Test Point; TP2 (GND:E1)/VF-26 board

Adj. Point; ① RV11 (DC BALANCE)/VF-26 board  
Spec.;  $A = 47 \pm 2V_{dc}$

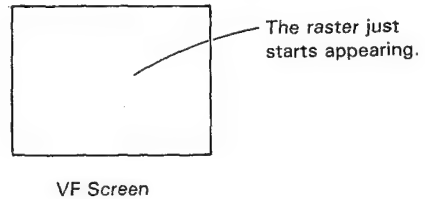


### 4-7-5. BRIGHT SET Adjustment

Preparation; • Set the iris control to "CLOSE".

- BRIGHT control (viewfinder) → mechanical center
- CONTR control (viewfinder) → fully counterclockwise

1. Set ① RV2 (BRIGHT SET)/VF-26 board at the point where the raster just starts appearing.



#### 4-7-6. Focus Adjustment

**Note;** 4-7-8. Picture Frame Adjustment and this adjustment affect each other. Repeat these adjustments until both specifications are satisfied.

Object; Resolution Chart

Equipment; Waveform Monitor

Preparation; • BRIGHT control (viewfinder) →

mechanical center

• CONTR control (viewfinder) →

↻ fully clockwise

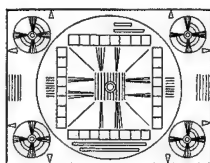
• S5 (WHITE CLIP & KNEE)/PR-78 board → "OFF"

• S1 (PEAKING)/VF-26 board → "OFF"

• ⚙ RV10 (SUB FOCUS)/VF-26 board →

↻ fully clockwise

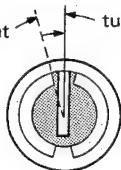
1. Adjust the zoom control so that the resolution chart touches the underscanned picture frame on the monitor.



Monitor Screen

2. Adjust the iris control so that the peak level at TEST OUT terminal is 0.7V.
3. Adjust ⚙ RV3 (FOCUS)/VF-26 board so that the picture on the viewfinder is best focused.
4. S1 (PEAKING)/VF-26 board → "ON"
5. Adjust ⚙ RV10 (SUB FOCUS)/VF-26 board so that the picture on the viewfinder is best focused, then turn it clockwise at an angle of approx. 15°.

The best focusing point

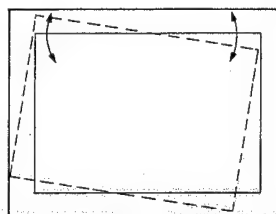


6. Adjust ⚙ RV3 (FOCUS)/VF-26 board so that the picture on the viewfinder is best focused.

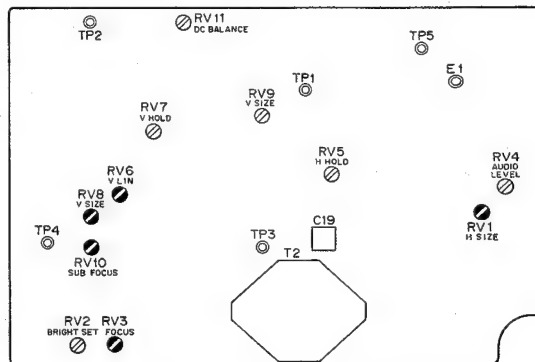
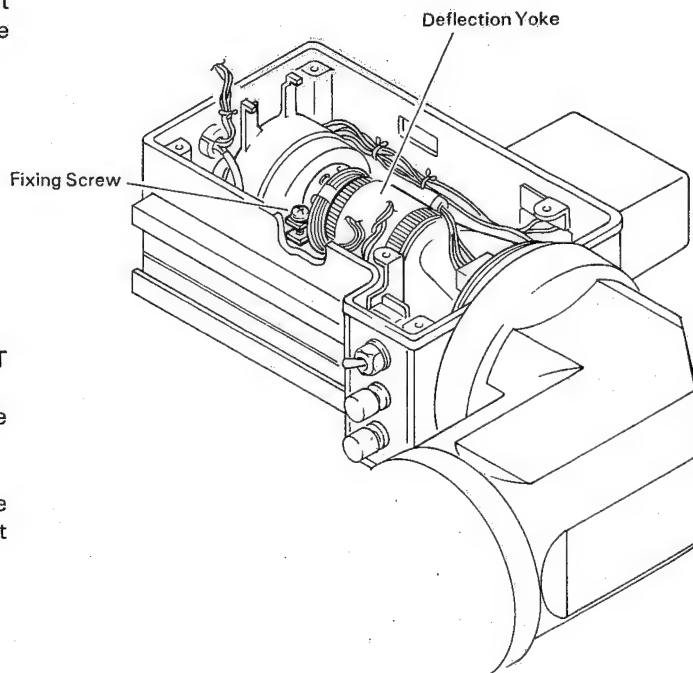
**Note;** After this adjustment is completed, set the S5 (WHITE CLIP & KNEE)/PR-78 board to "ON".

#### 4-7-7. Deflection Yoke Tilt Adjustment

1. When the picture on the viewfinder tilts against the picture frame, loosen the deflection yoke fixing screw and turn the yoke for adjustment of inclination.
2. Tighten the fixing screw carefully.



VF Screen

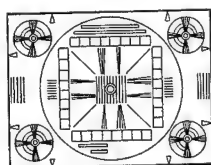


#### 4-7-8. Picture Frame Adjustment

**Note;** 4-7-6. Focus Adjustment and this adjustment affect each other.  
Repeat these adjustments until both specifications are satisfied.

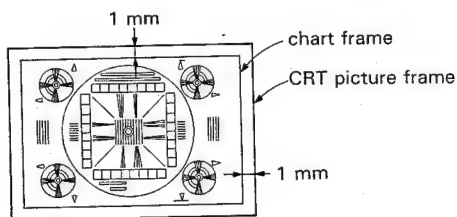
Object; Resolution Chart  
Preparation; • Remove the eye cap from the viewfinder.  
• BRIGHT control (viewfinder) → mechanical center  
• CONTR control (viewfinder) → mechanical center  
• S1 (PEAKING)/VF-26 board → "OFF"

1. Adjust the zoom control so that the resolution chart frame touches the underscanned picture frame on the monitor.



Monitor Screen

2. Adjust the centering magnet of the deflection coil so that the center of resolution chart is located at the center of VF screen.
3. Adjust Ⓐ RV1 (H SIZE)/VF-26 board so that the H size of resolution chart is underscanned by approx. 1 mm from the CRT picture frame.
4. Adjust Ⓑ RV8 (V SIZE)/VF-26 board so that the V size of resolution chart is underscanned by approx. 1 mm from the CRT picture frame.



VF Screen

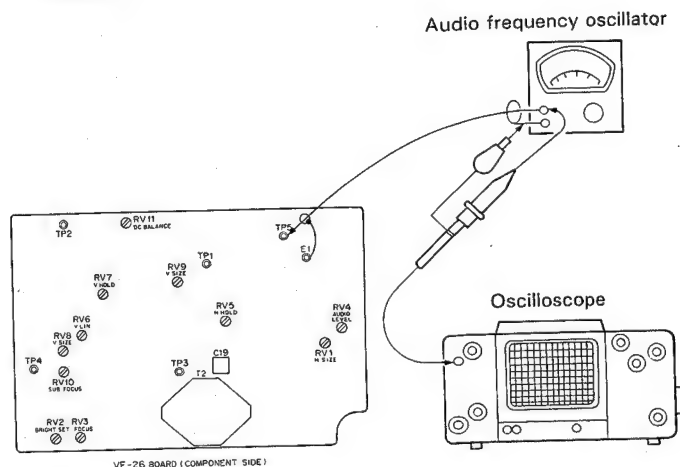
5. Adjust Ⓒ RV6 (V LIN)/VF-26 board so that the distortion of each circle at the four corners of resolution chart is minimized.
6. Adjust the centering magnet of the deflection coil so that the resolution chart is located in the center of VF screen.
7. When the picture on the viewfinder tilts against the picture frame, perform 4-7-7. Deflection Yoke Tilt Adjustment.
8. Repeat Step 2 to Step 7 until the specifications are satisfied.

#### 4-7-9. Audio Level Adjustment

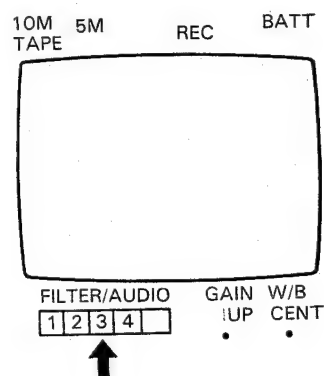
**Note;** When the camera is connected to VTR (BVV-1/1A), this adjustment can not be performed. Adjust that in the camera stand alone.

Equipment; Oscilloscope, Audio Frequency Oscillator  
Preparation; • AUDIO/FILTER switch (viewfinder) → "AUDIO"  
• TALLY/ZEBRA ON/OFF switch (viewfinder) → "OFF"

Connection;



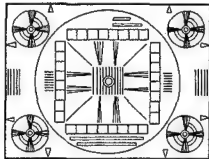
1. Adjust Ⓓ RV4 (AUDIO LEVEL)/VF-26 board so that ③ on the FILTER/AUDIO indication plate of the viewfinder lights up slightly when the sine-wave of 1kHz, 0.332Vp-p is fed to TP5 (GND:E1)/VF-26 board and ③ goes off when the sine-wave level is reduced to 0.328Vp-p.



### 4-7-10. Peaking level Adjustment

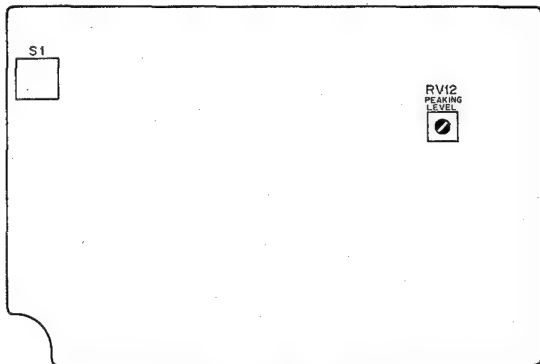
Object; Resolution Chart  
 Equipment; Waveform Monitor  
 Preparation; S1 (PEAKING)/VF-26 board → "ON"

1. Adjust the zoom control so that the resolution chart frame touches the underscanned picture frame on the monitor.

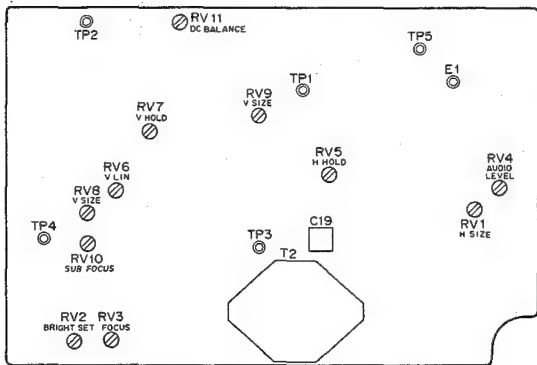


Monitor Screen

2. Adjust the iris control so that the peak level of the waveform at TEST OUT terminal is 0.7V.
3. Set the peak level on the VF screen according to the users' request by adjusting RV12 (PEAKING LEVEL)/VF-26 board.



VF-26 BOARD (SOLDERING SIDE)



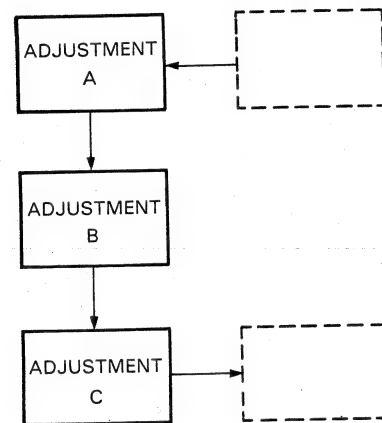
VF-26 BOARD (COMPONENT SIDE)

## 4-8. PARTIAL ADJUSTMENT

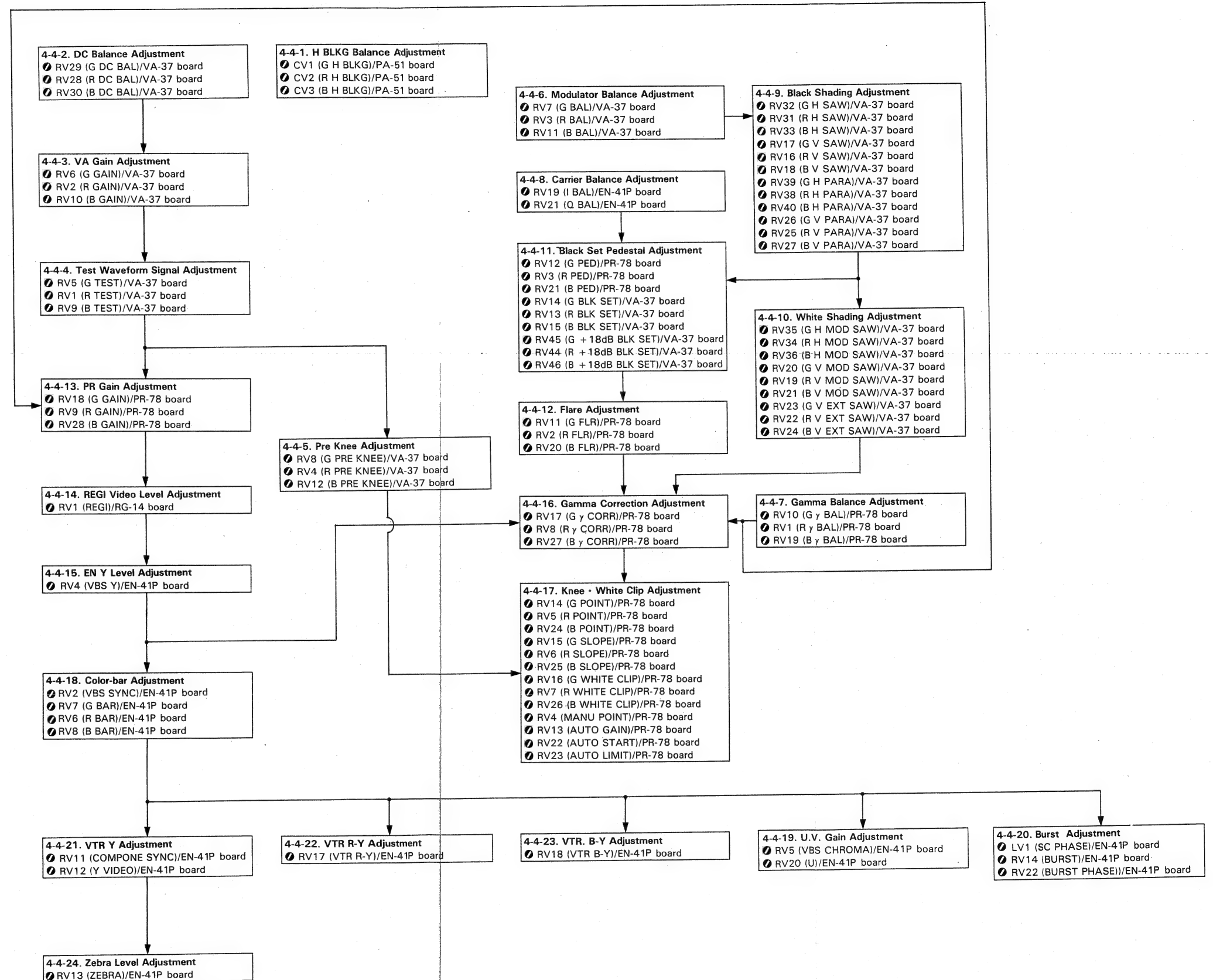
Before this adjustment, set the switches referring to 4-1-2. Connection and Initial Setting.

### 4-8-1. Partial adjustment of Video Signal System

The relation between respective adjustments of the video signal system is described in the Fig. 4-1.  
Perform the adjustments in order as shown below.



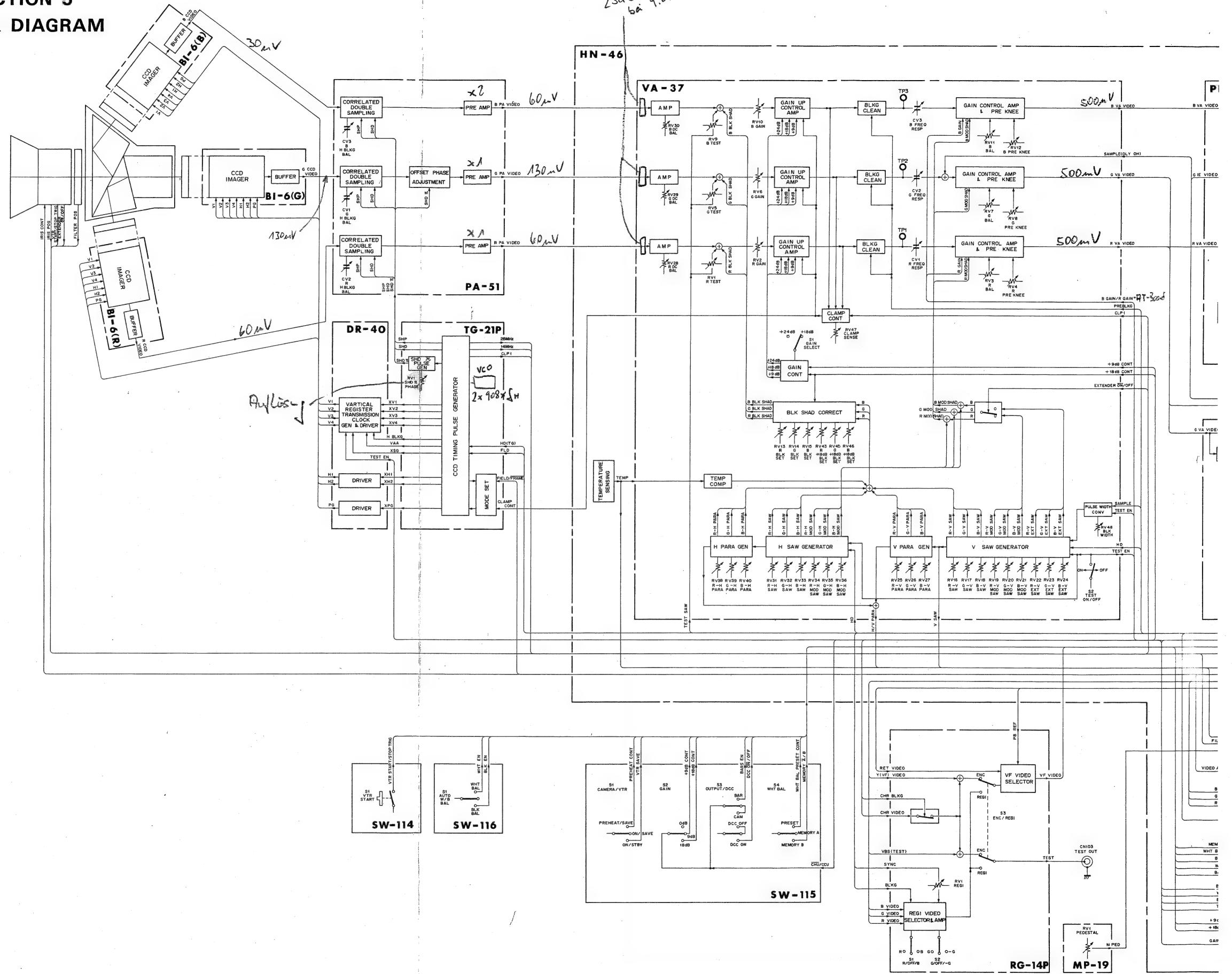
- \* When performing the ADJUSTMENT B;  
(1) Check that the ADJUSTMENT A satisfies the specification.  
(If not, it is necessary to readjust it.)  
(2) Carry out the ADJUSTMENT B.  
(3) Check that the ADJUSTMENT C satisfies the specification.  
(If not, it is necessary to readjust it.)

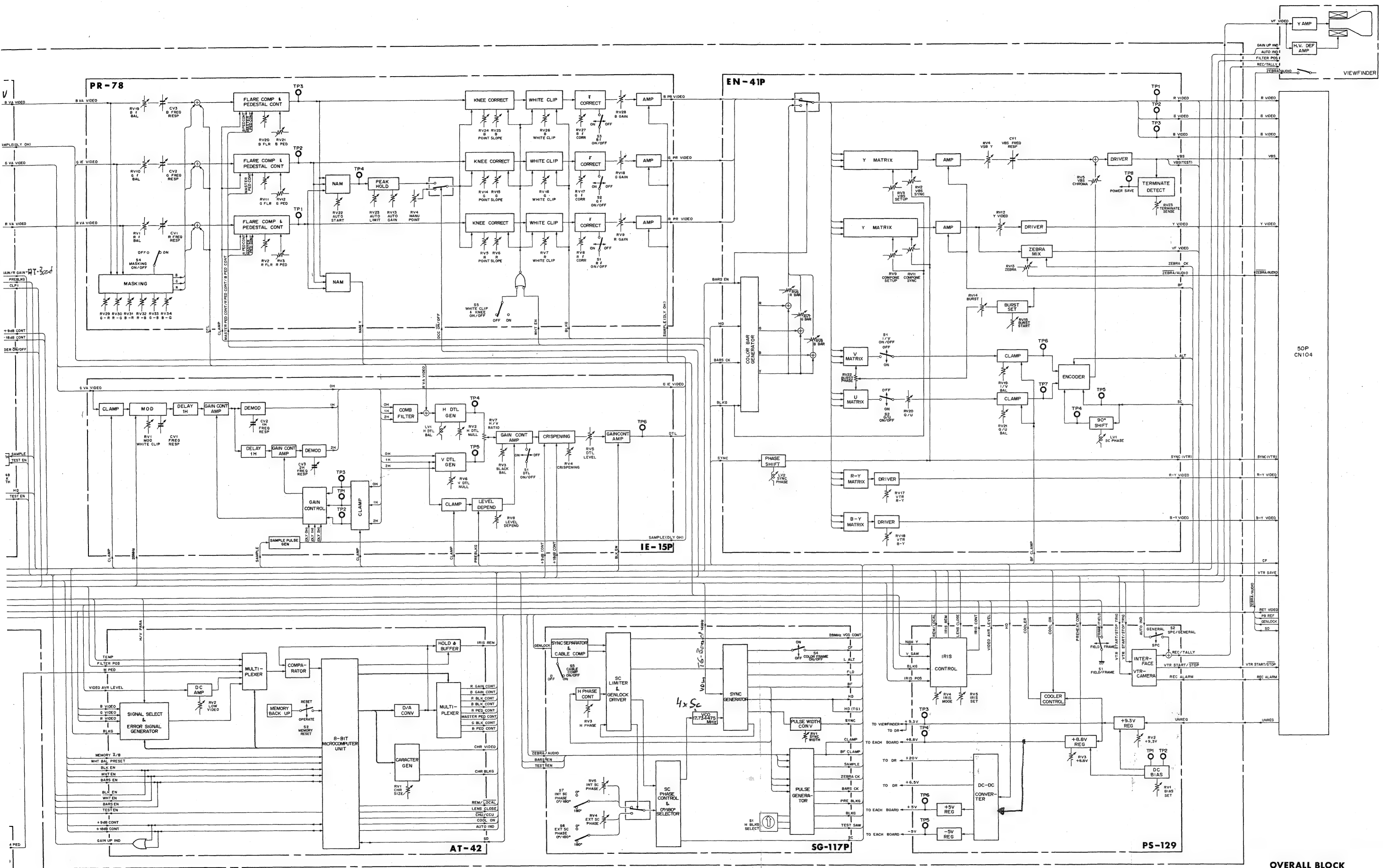




# SECTION 5 BLOCK DIAGRAM

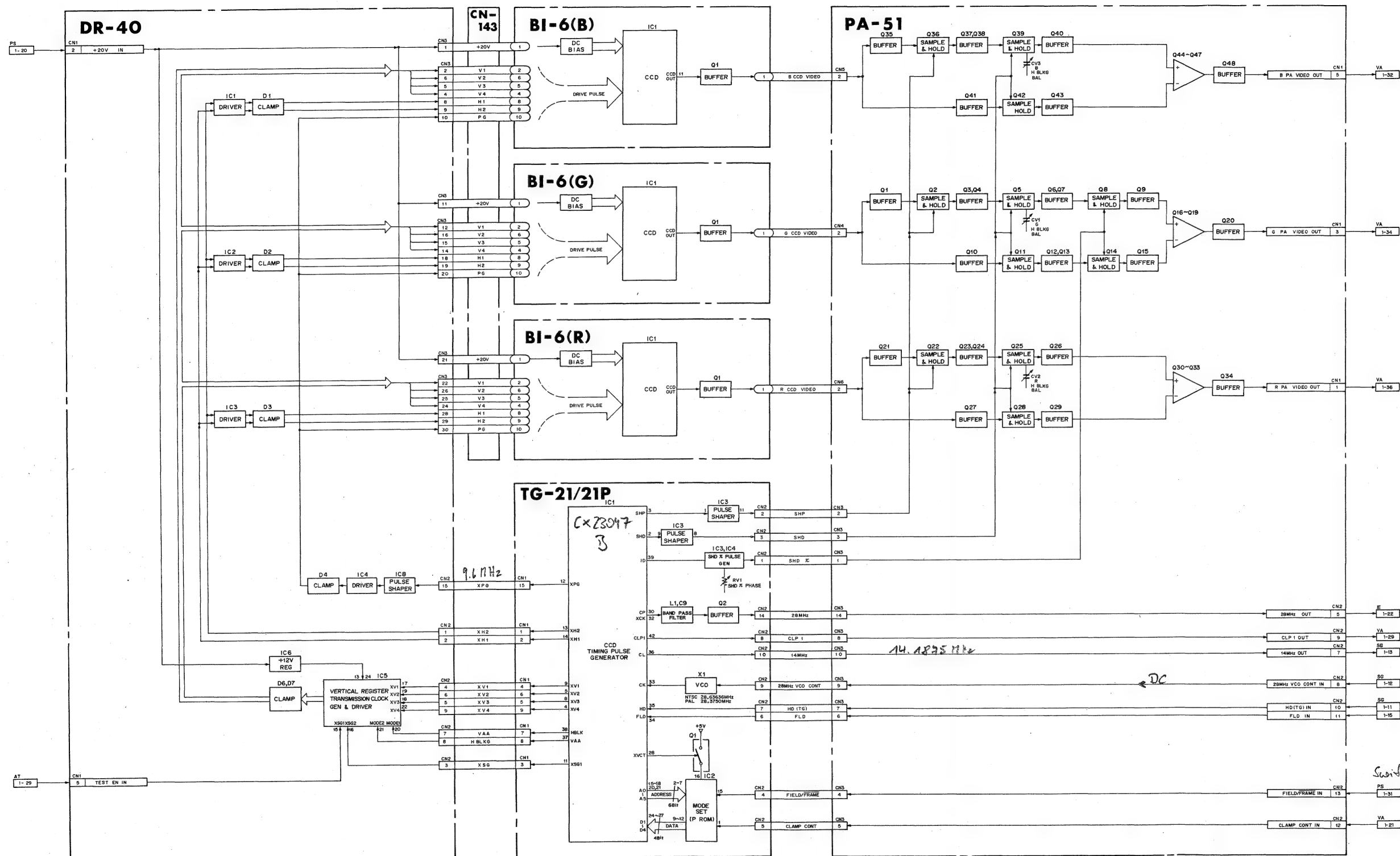
## OVERALL BLOCK DIAGRAM





CCD-BLOCK (BI-6 BOARD, CN-143 BOARD, DR-40 BOARD, PA-51 BOARD, TG-21/21P BOARD)

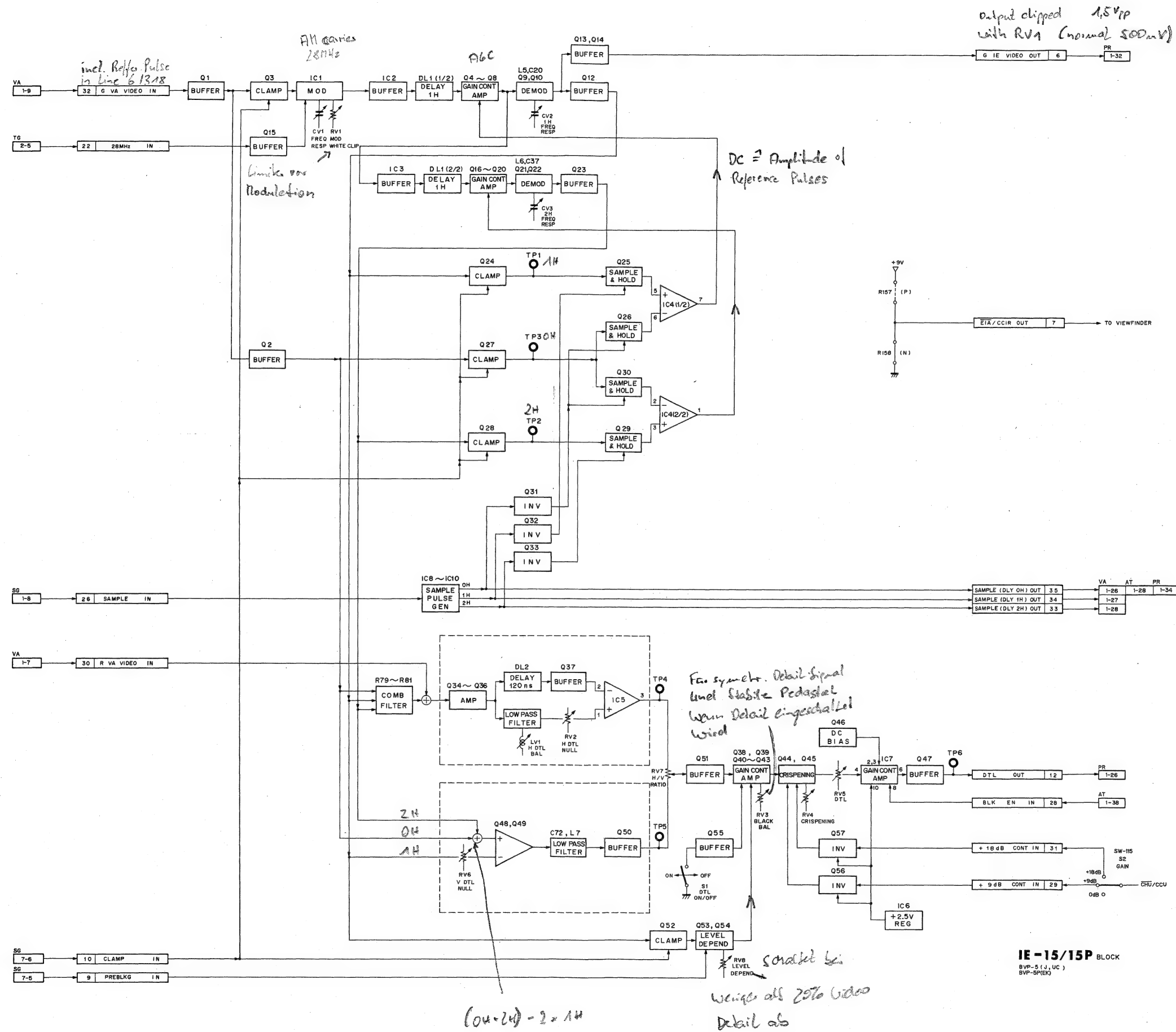
IE-15/15P



CCD-BLOCK  
BI-6 BLOCK  
CN-143 BLOCK  
DR-40 BLOCK  
PA-51 BLOCK  
TG-21/21P BLOCK

BVP-5 (1,2,3,4,5)  
BVP-5P (1,2,3,4,5)

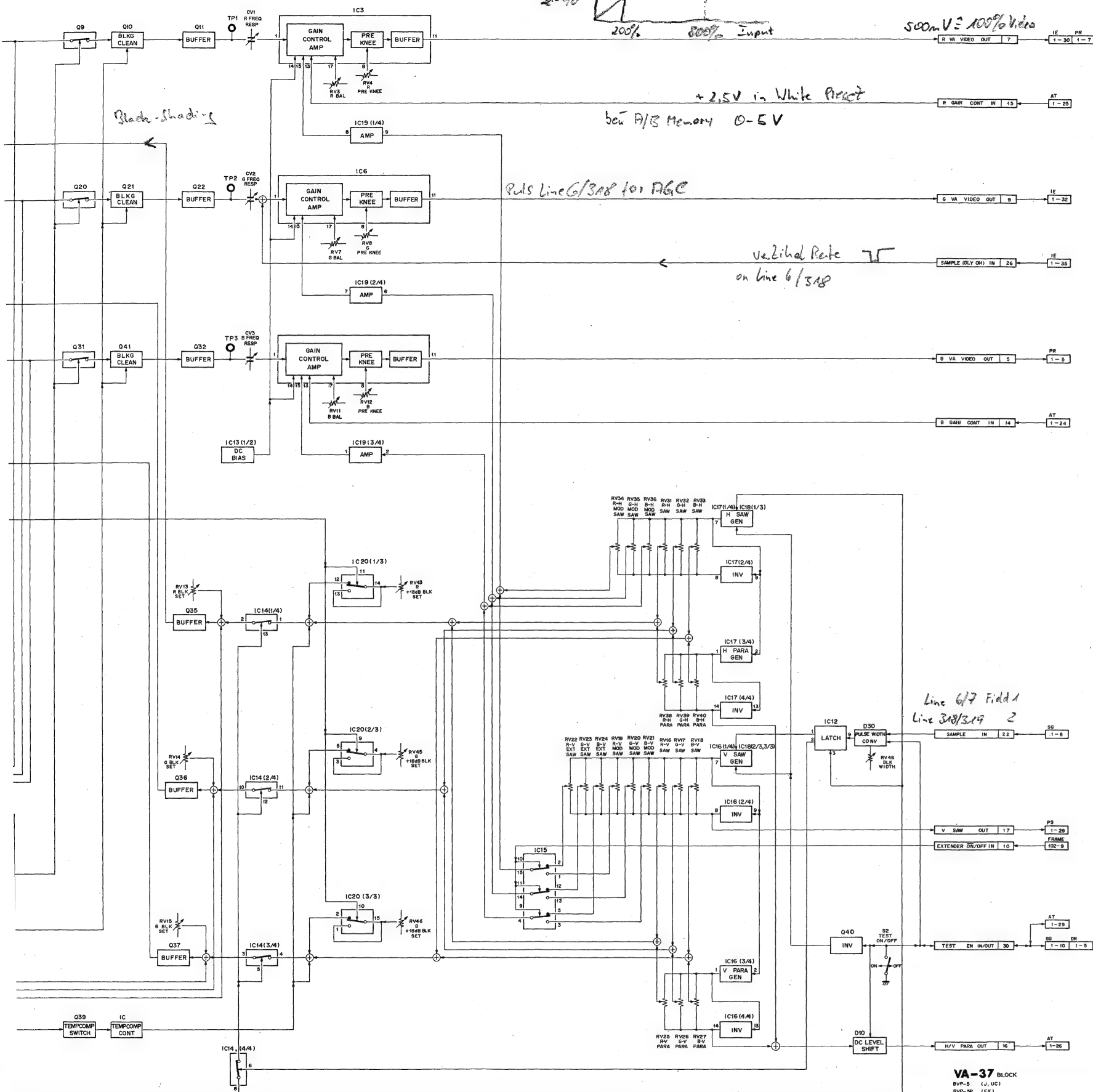
IE-15/15P BOARD



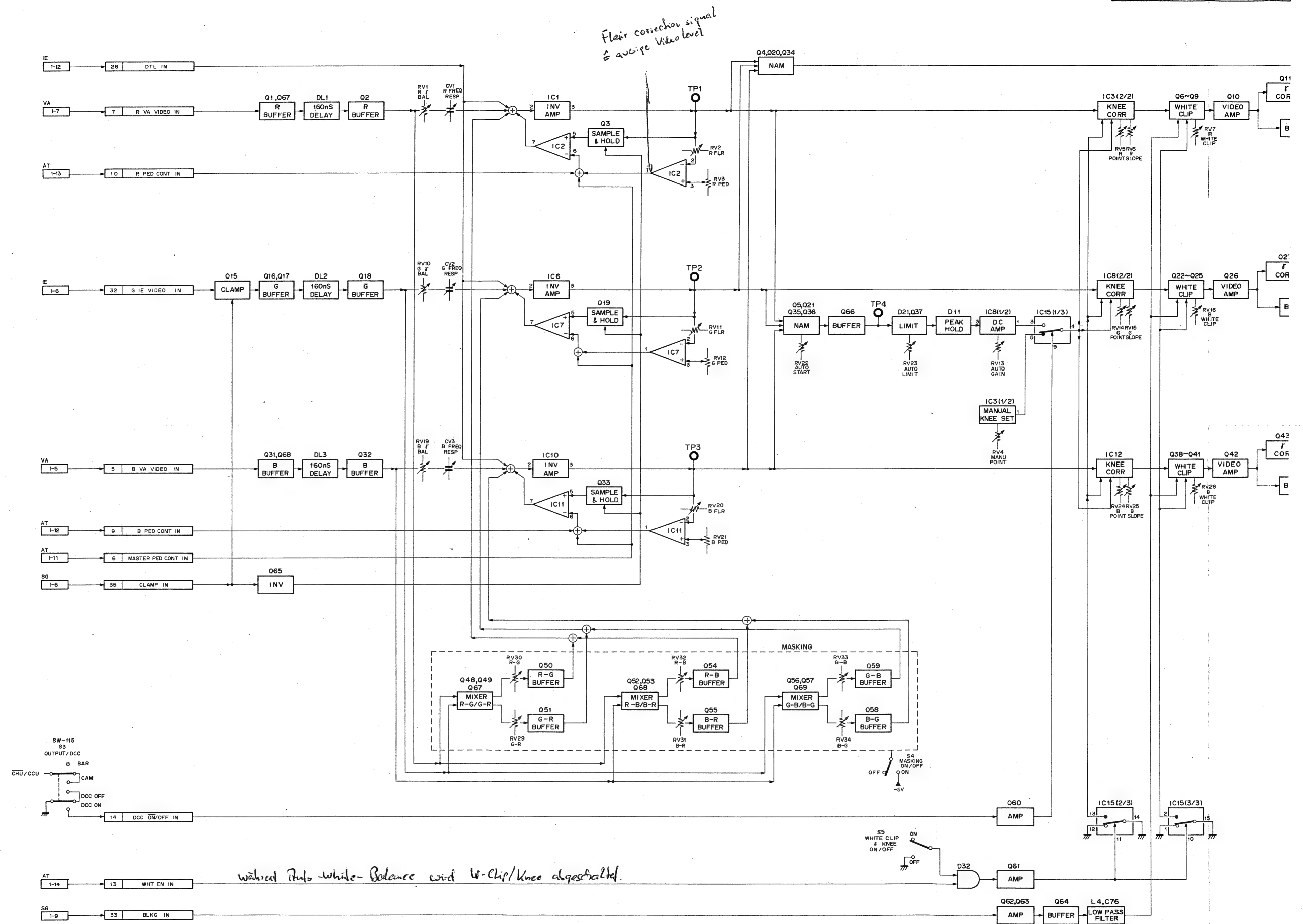


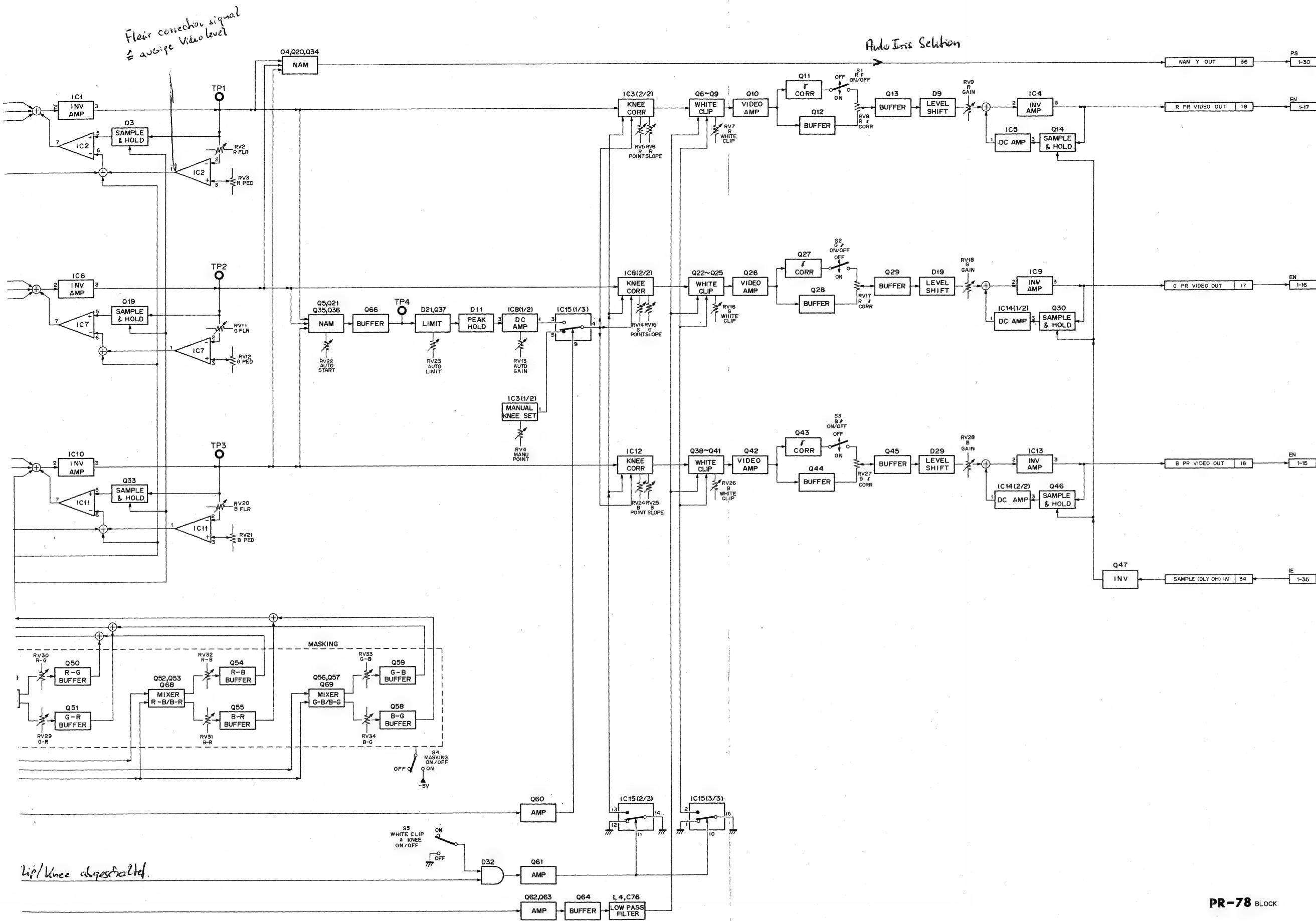
without blanking  
Q9 and Q10 open Masse

Pre knee = 880% = 1.6V



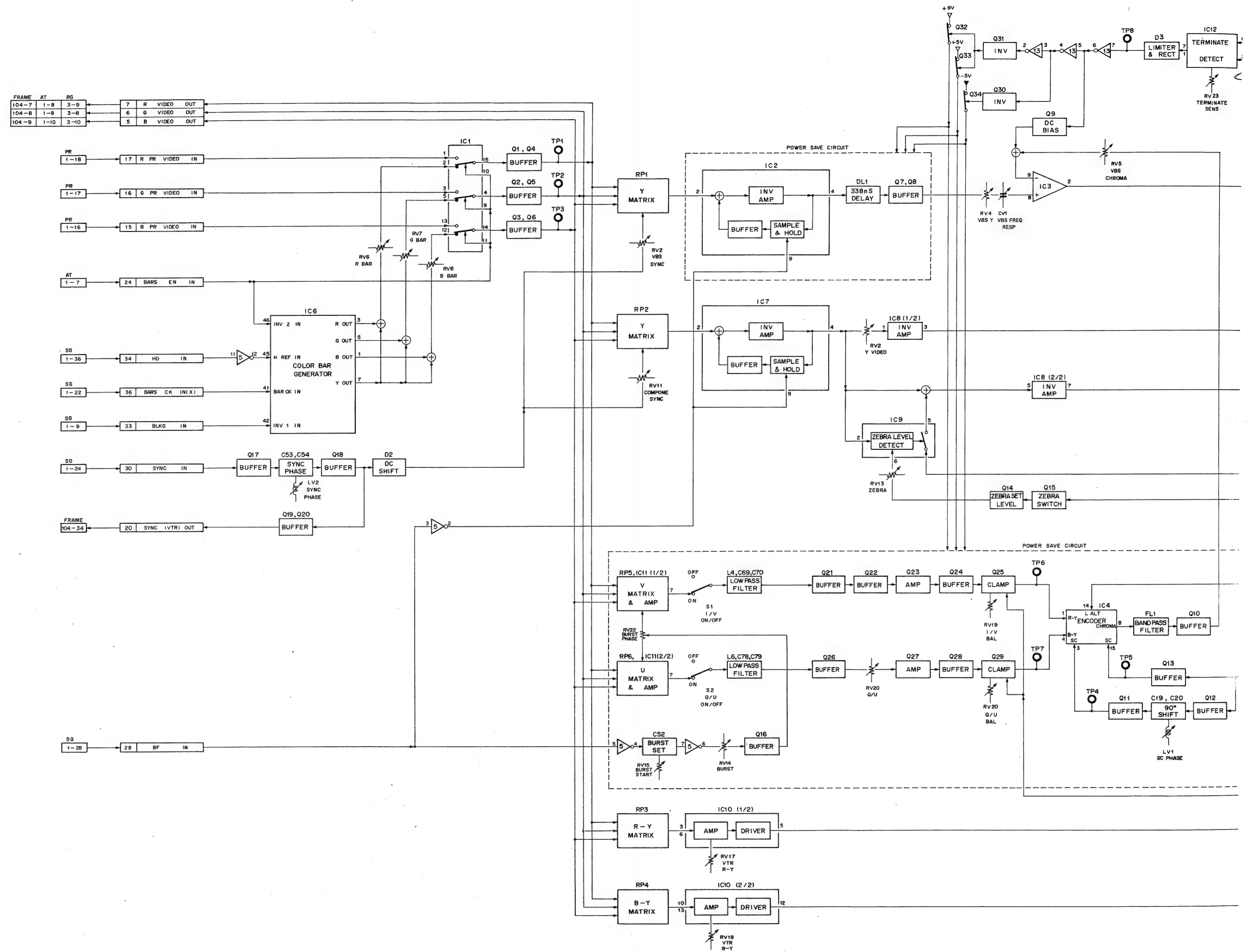
## PR-78 BOARD

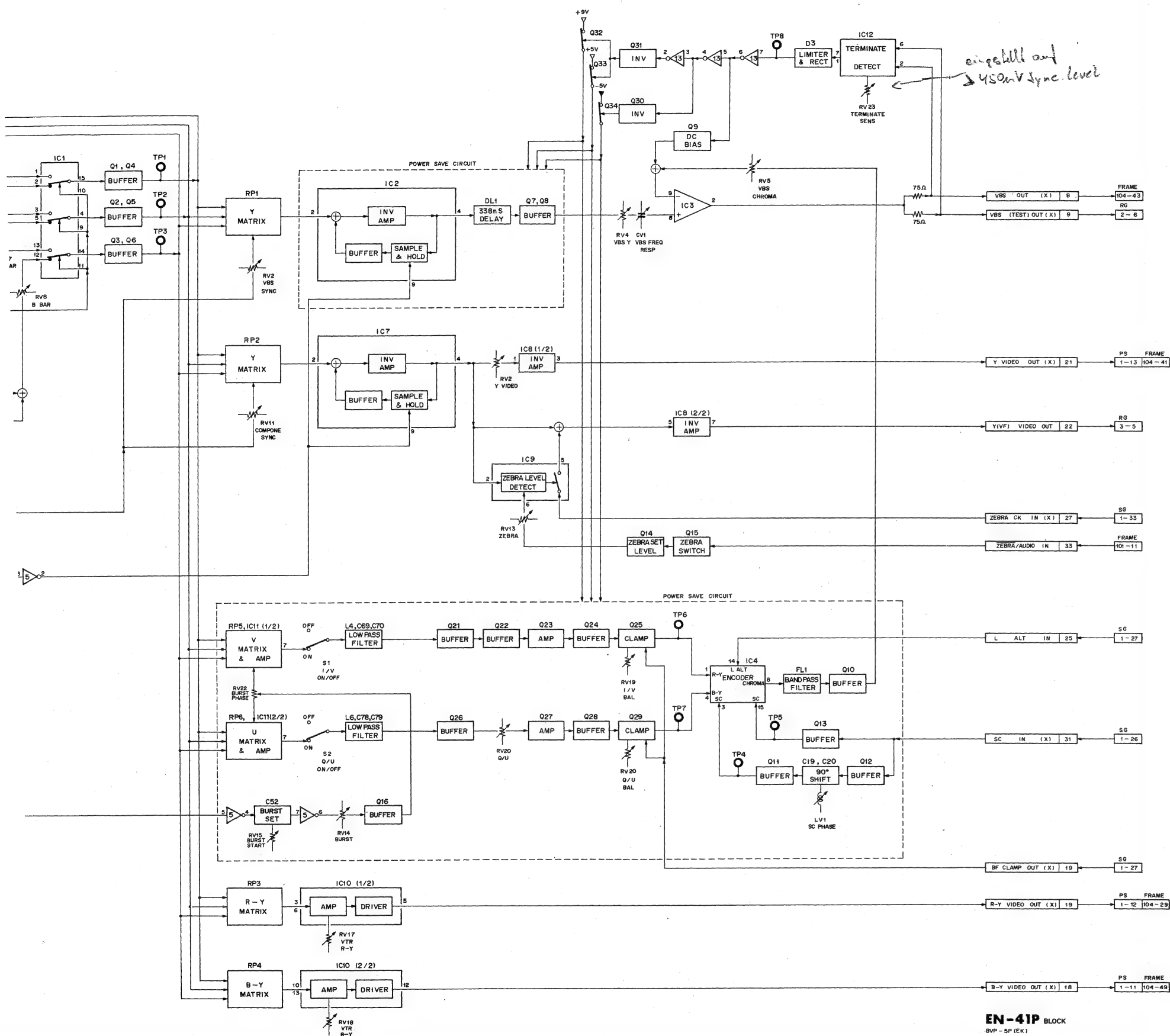




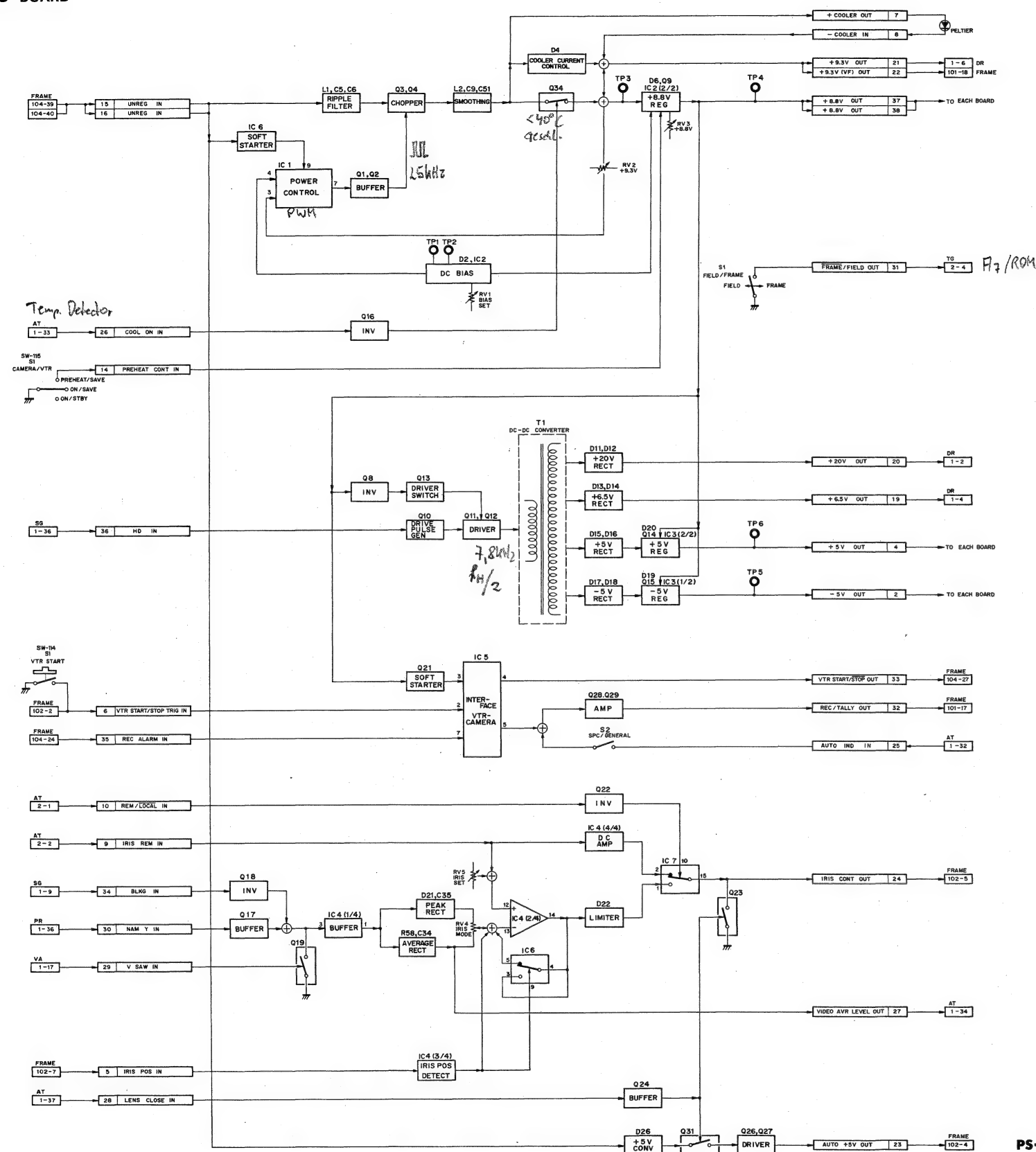


EN-41/41P BOARD

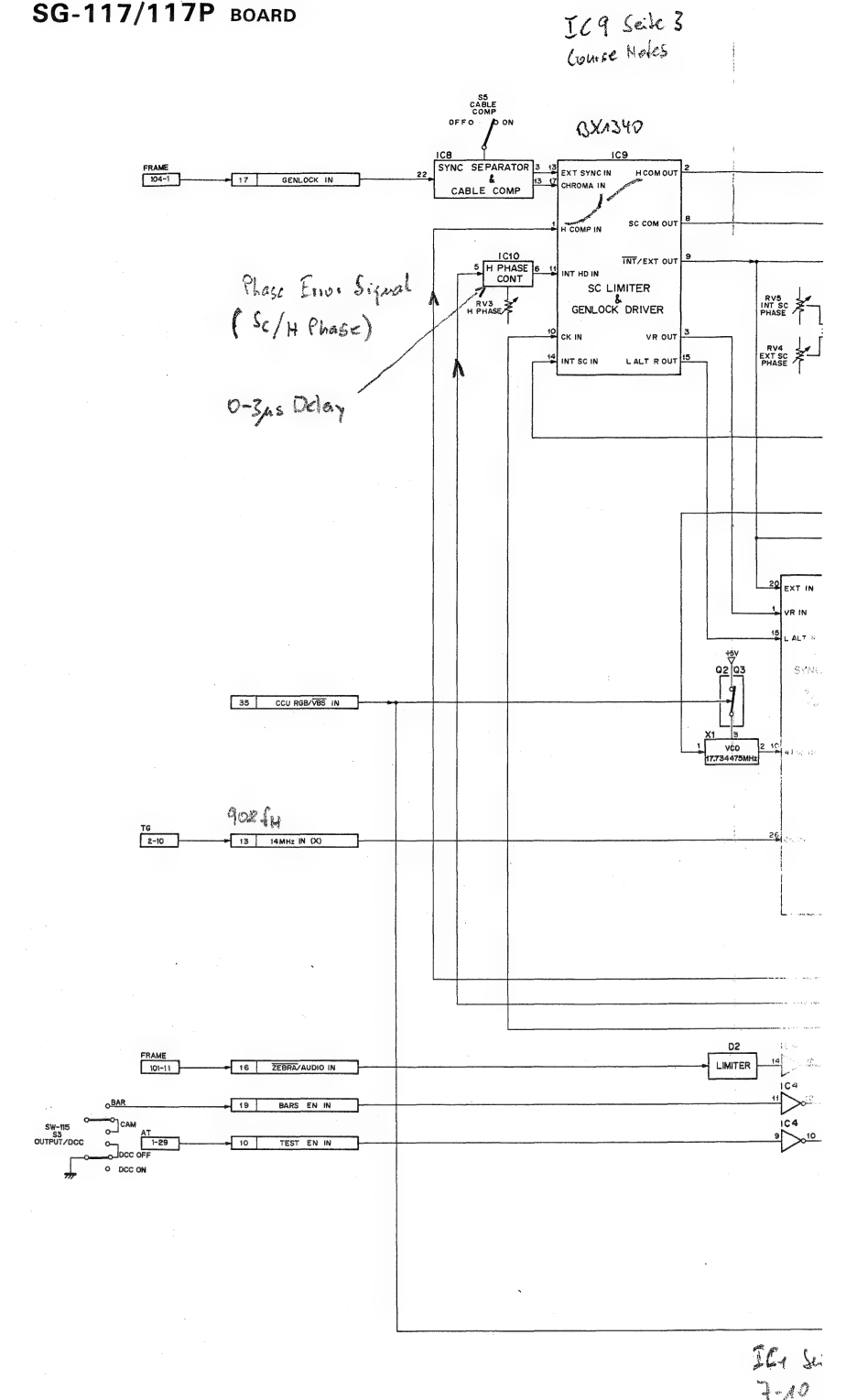




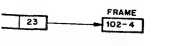
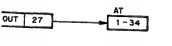
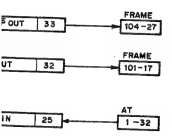
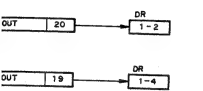
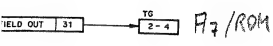
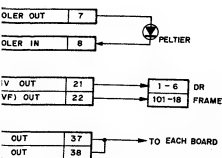
## PS-129 BOARD



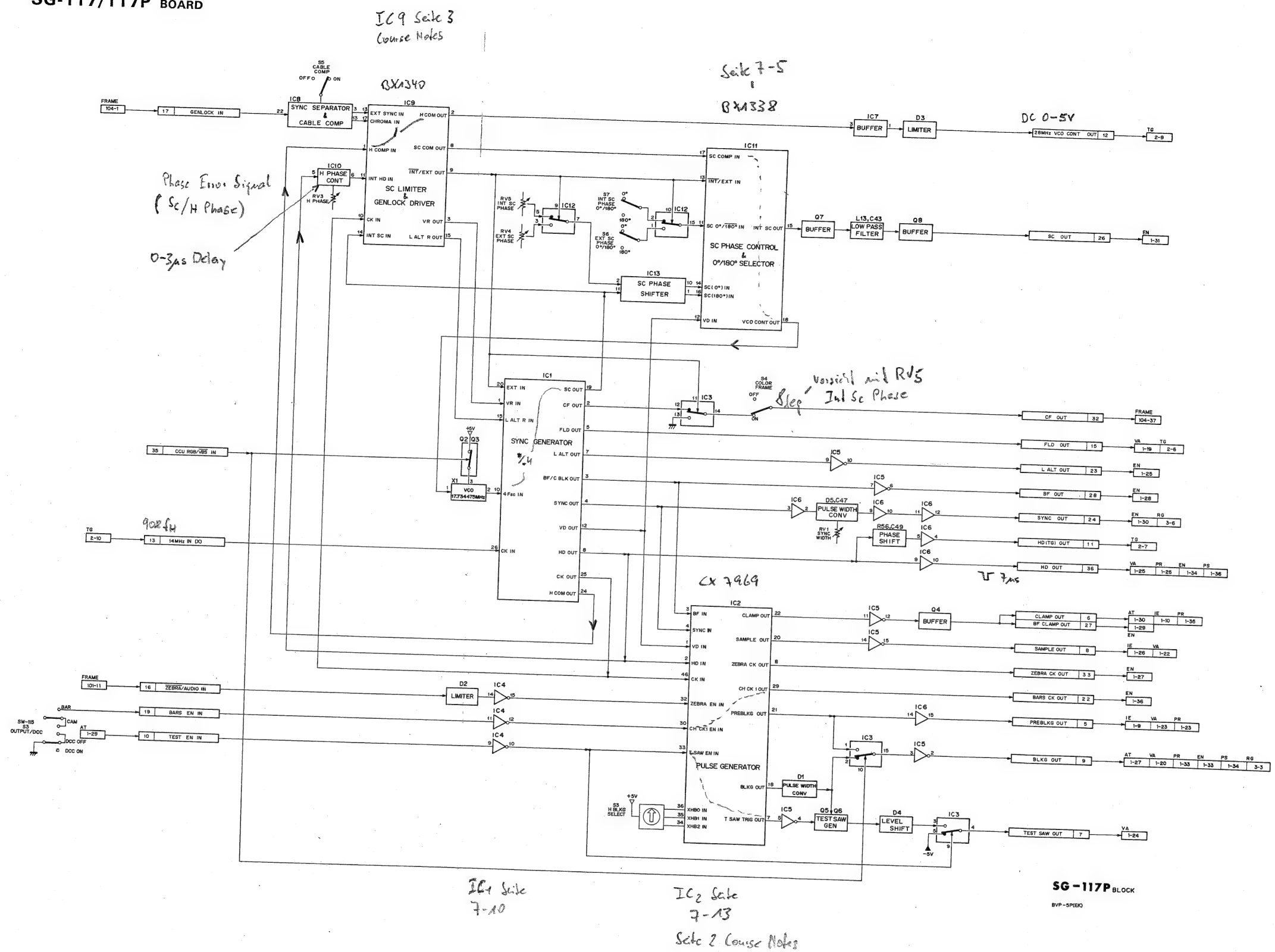
## SG-117/117P BOARD



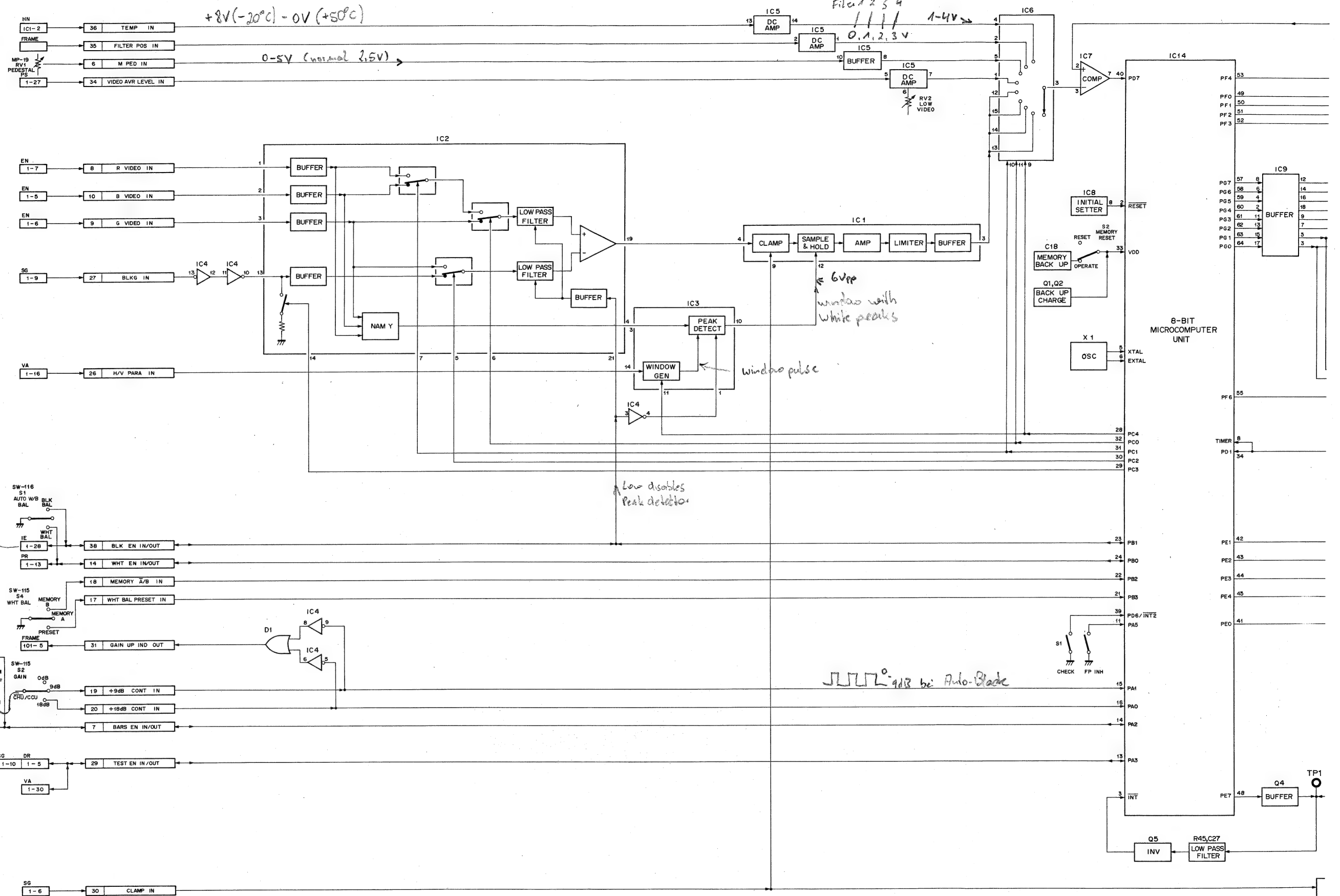
SG-117/117P BOARD

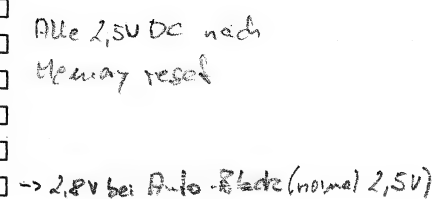


PS-129 BLOCK  
BVP-5 (JUC)  
BVP-5P (EK)

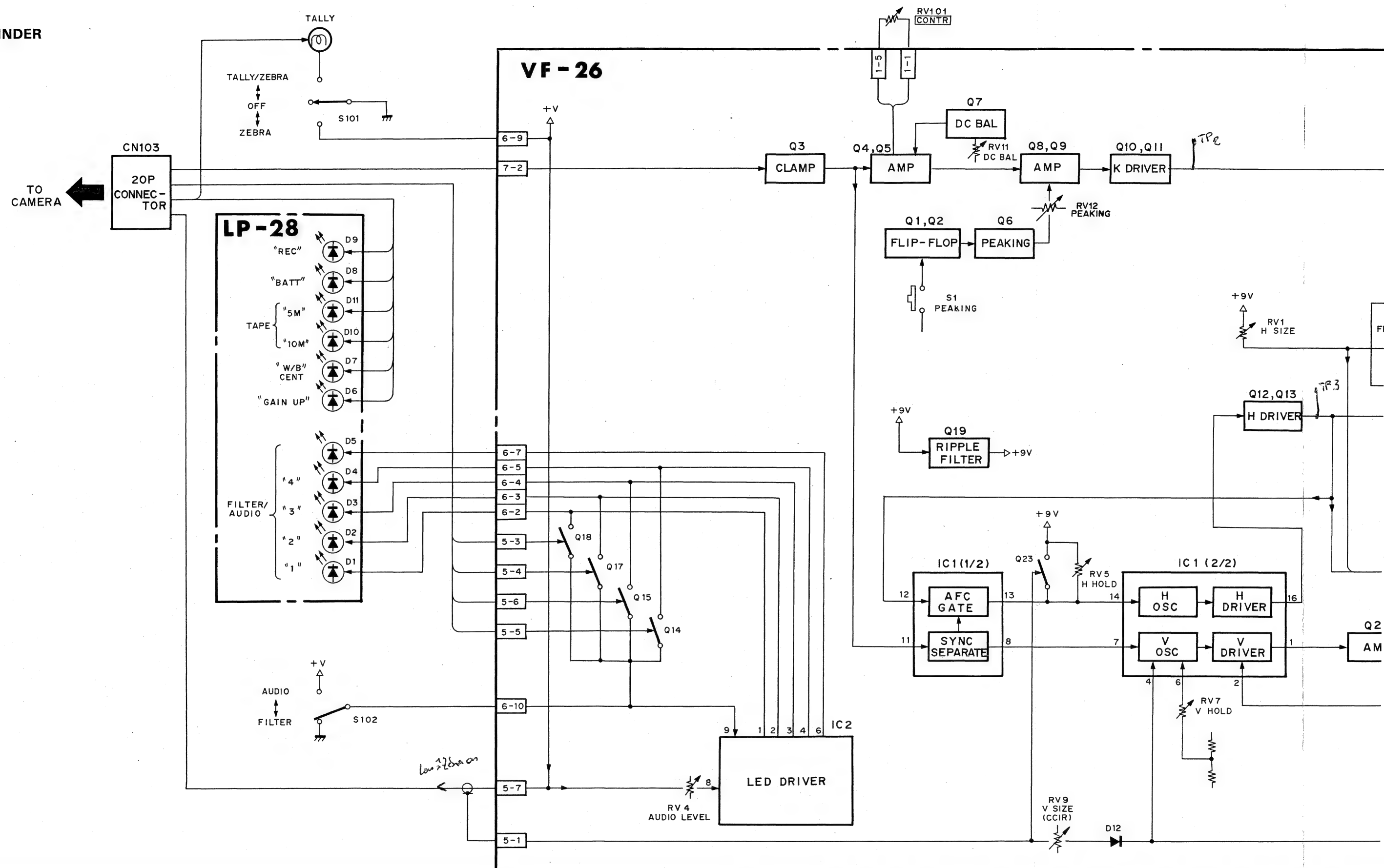


AT-42 BOARD



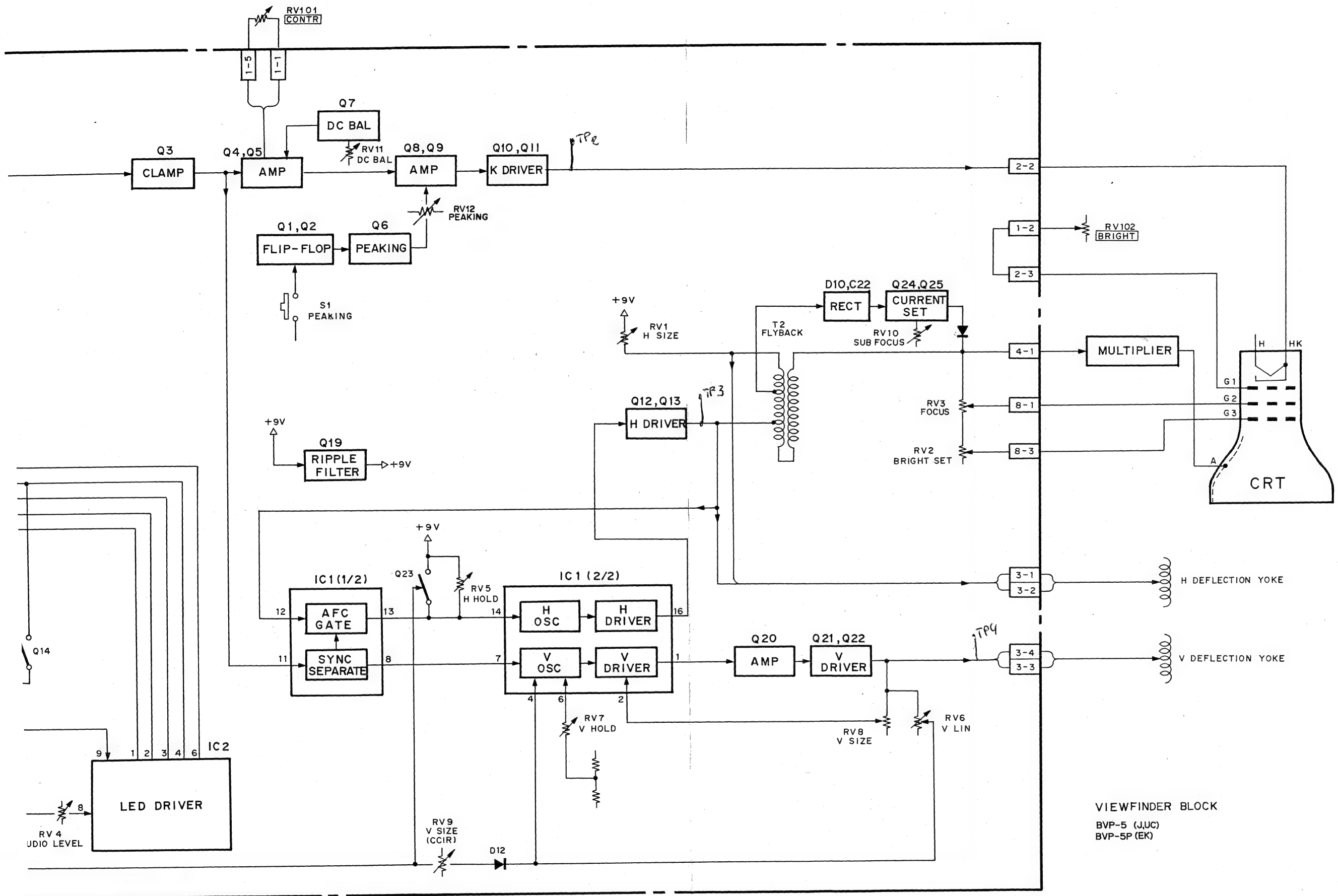


VIEWFINDER



VIEWFINDER

VIEWFINDER



VIEWFINDER BLOCK

BVP-5 (JUC)

BVP-5P (EK)

BVP-5 (J, UC)

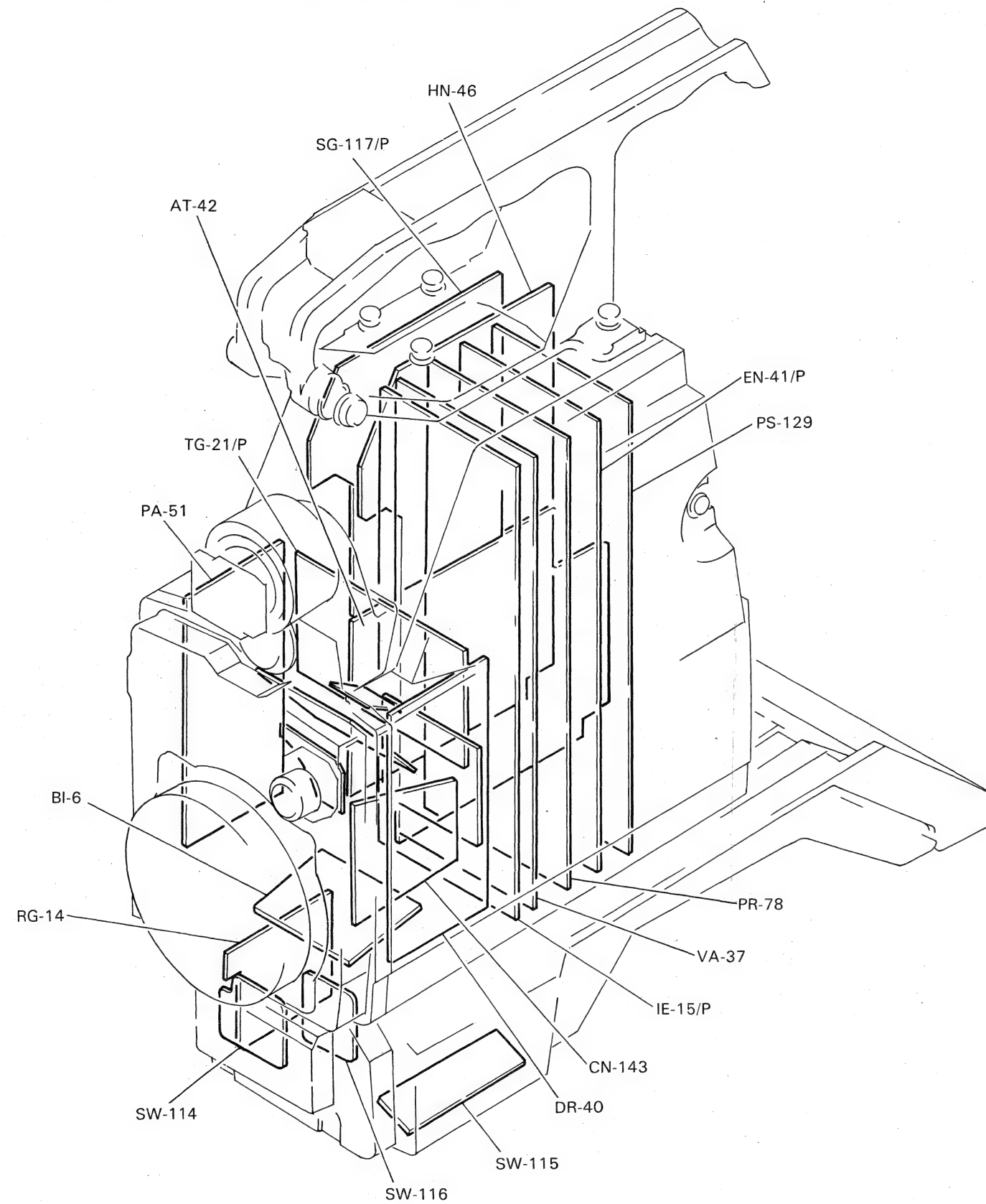
BVP-5P (EK)



SECTION 6

MOUNTING DIAGRAM AND SCHEMATIC DIAGRAM

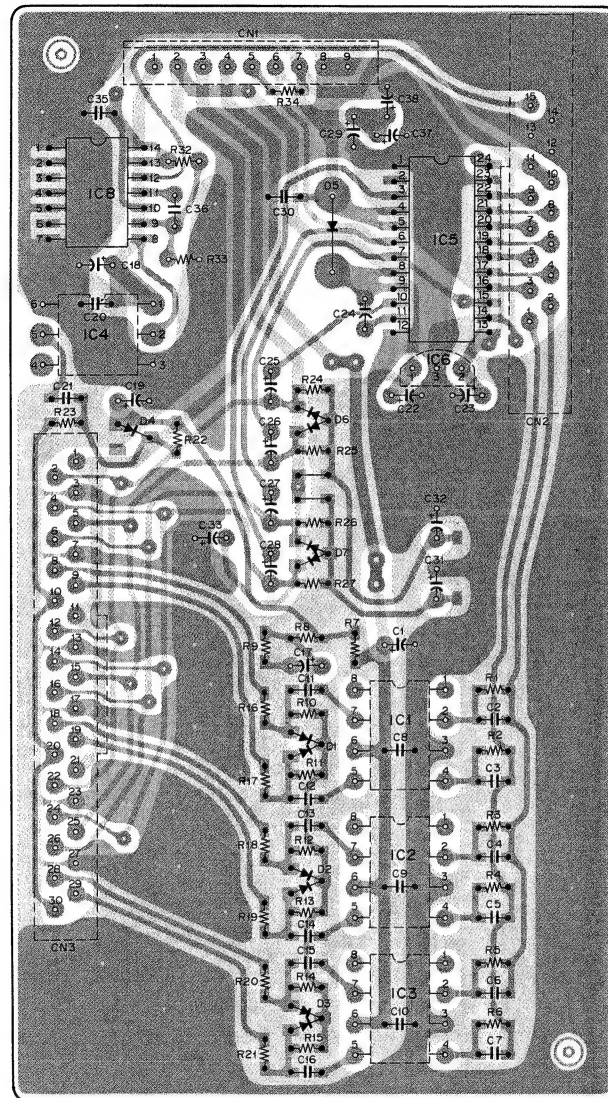
BOARD LAYOUT



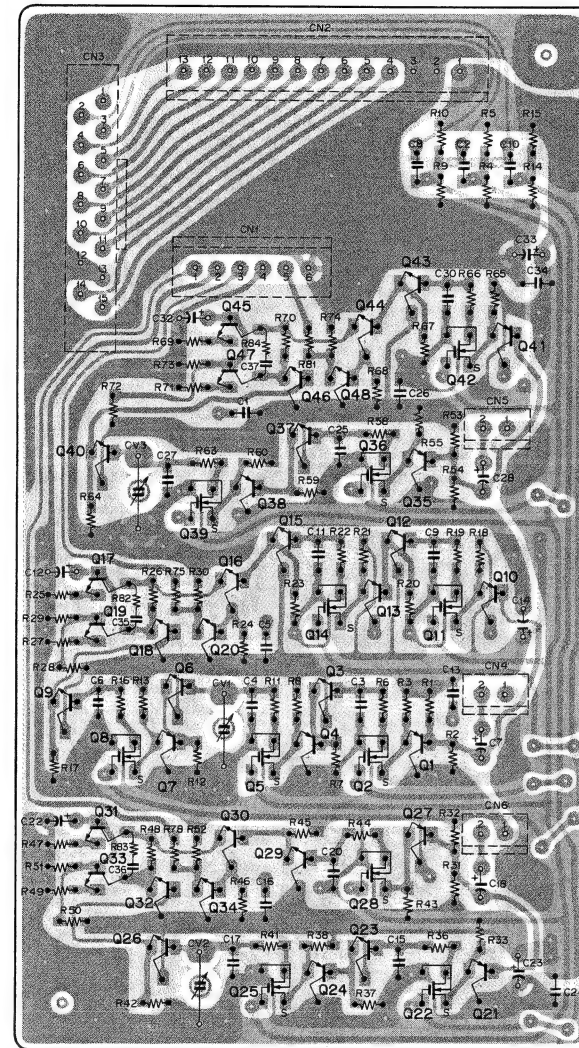
BVP-5 (J, UC)  
BVP-5P (EK)

BI-6 BOARD  
CN-143 BOARD  
DR-40 BOARD  
PA-51 BOARD  
TG-21/21P BOARD

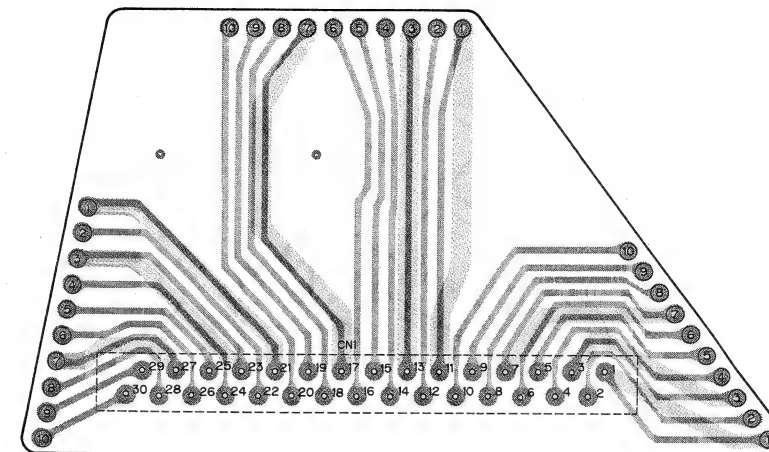
Serial No. 10001 ~ 10020 (J)  
Serial No. 10001 ~ 10020 (UC)  
Serial No. 10001 ~ 10010 (EK)



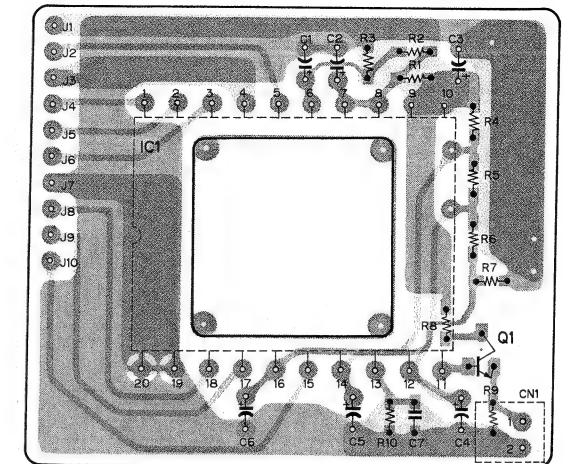
DR-40 BOARD  
— SOLDERING SIDE —  
1-618-179-11  
BVP-5 (J,UC) 10001~10020  
BVP-5P (EK) 10001~10010



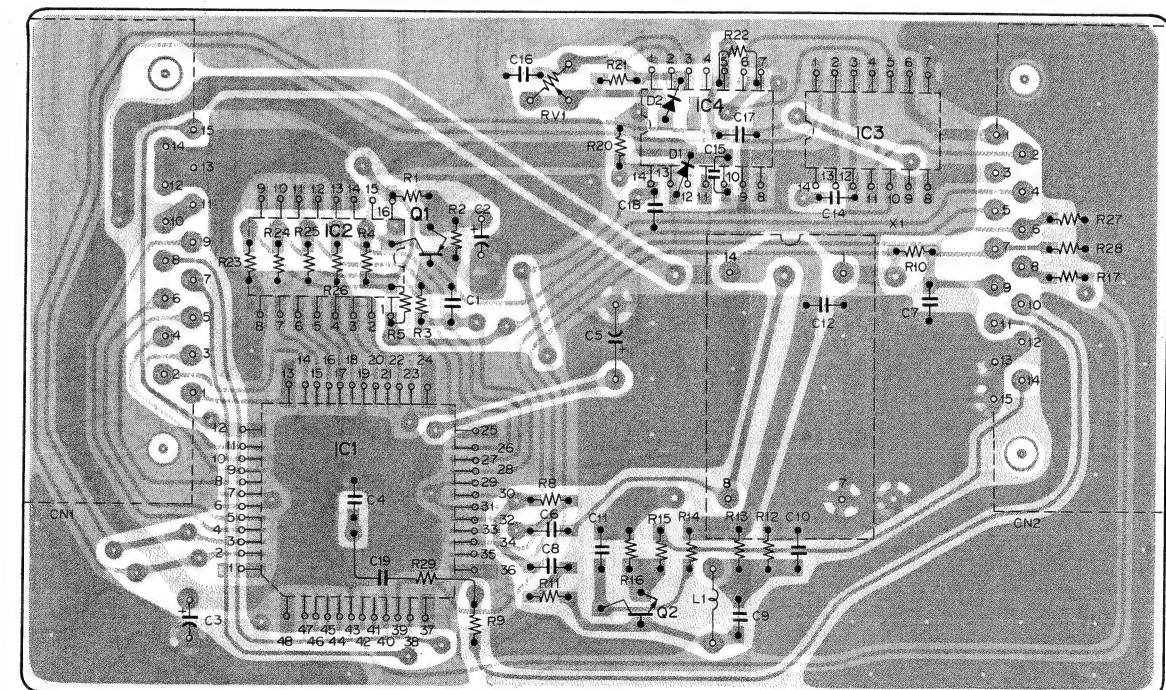
PA-51 BOARD  
— SOLDERING SIDE —  
1-618-180-11  
BVP-5 (J,UC) 10001~10020  
BVP-5P (EK) 10001~10010



CN-143 BOARD  
— SOLDERING SIDE —  
1-618-183-11  
BVP-5 (J,UC) 10001~10020  
BVP-5P (EK) 10001~10010



BI-6 BOARD  
— SOLDERING SIDE —  
1-618-178-11,12  
BVP-5 (J,UC) 10001~10020  
BVP-5P (EK) 10001~10010

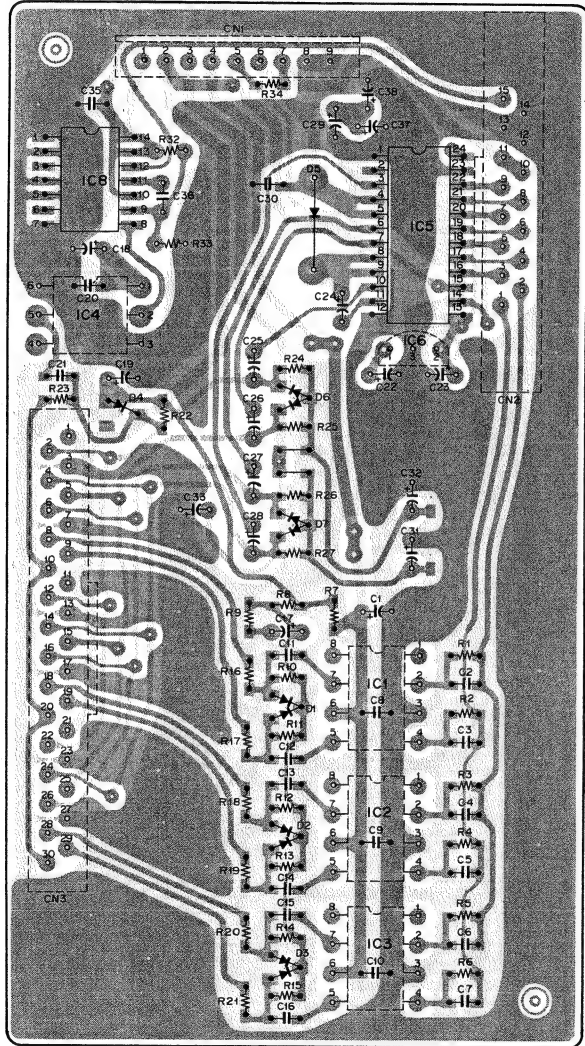


TG-21P BOARD  
— SOLDERING SIDE —  
1-618-181-11  
BVP-5P (EK) 10001~10010

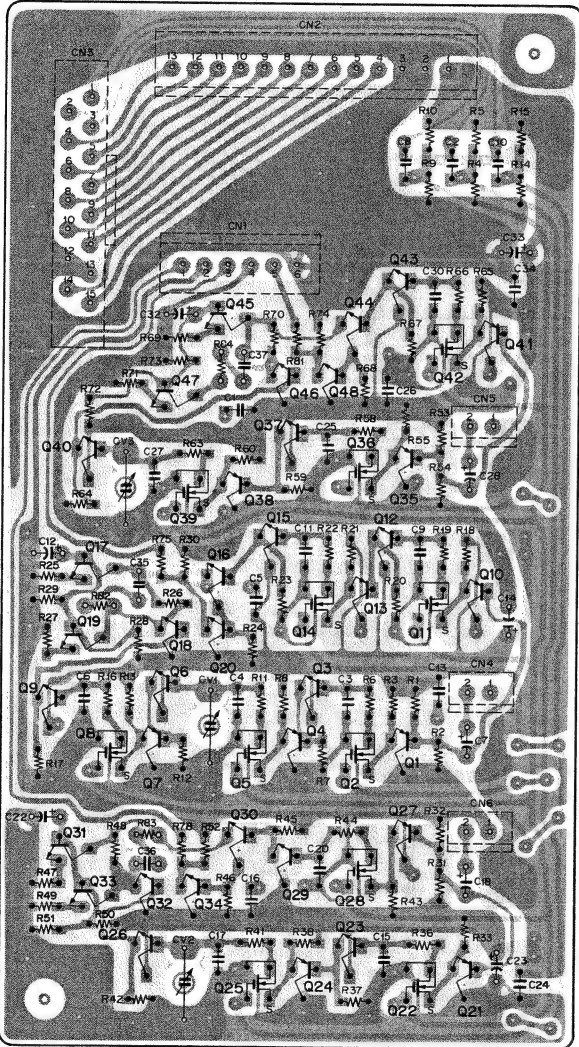


BI-6 BOARD  
CN-143 BOARD  
DR-40 BOARD  
PA-51 BOARD  
TG-21/21P BOARD

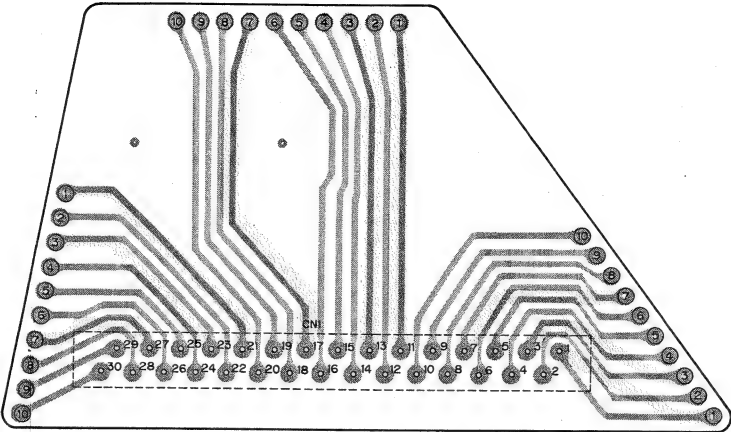
Serial No. 10021 ~ (J)  
Serial No. 10021 ~ (UC)  
Serial No. 10011 ~ (EK)



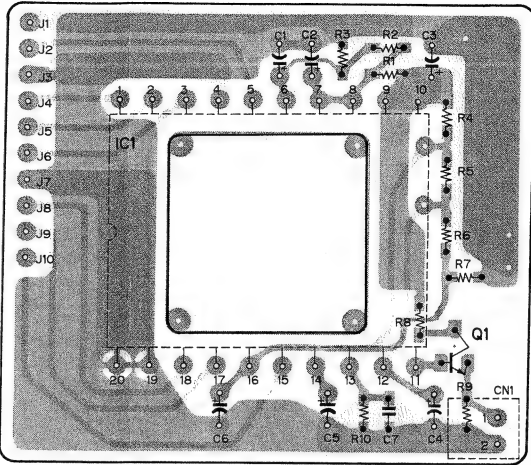
DR-40 BOARD  
— SOLDERING SIDE —  
1-618-179-12  
BVP-5 (J,UC) 10021~  
BVP-5P (EK) 10011~



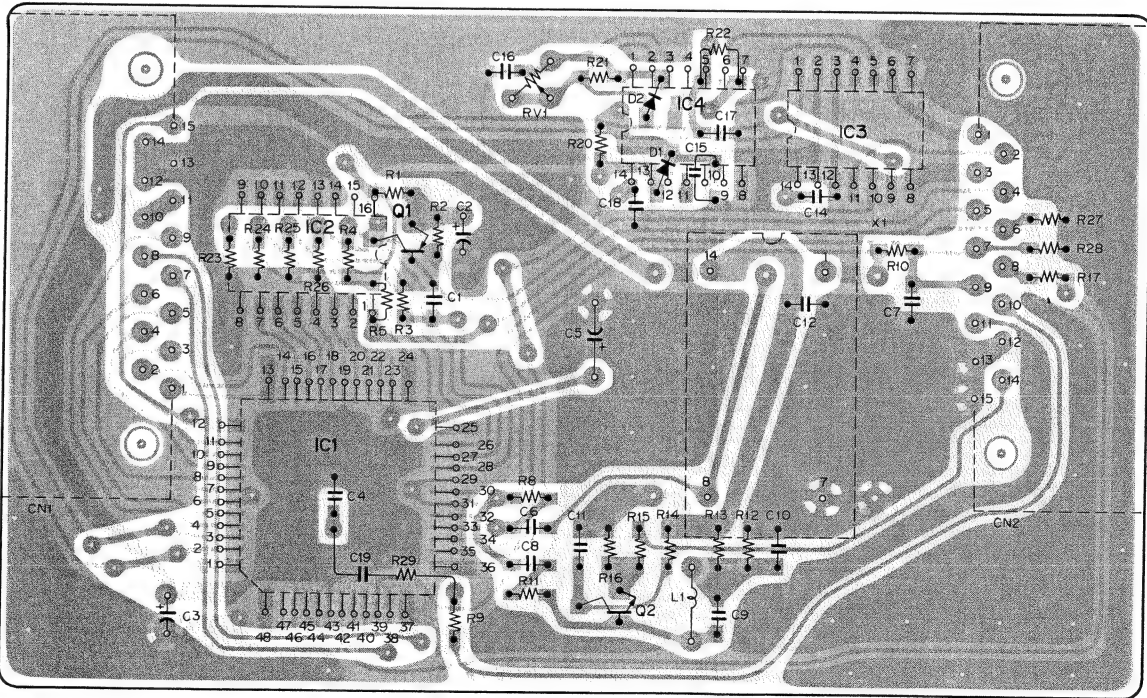
PA-51 BOARD  
— SOLDERING SIDE —  
1-618-180-12  
BVP-5 (J,UC) 10021~  
BVP-5P (EK) 10011~



CN-143 BOARD  
— SOLDERING SIDE —  
1-618-183-12  
BVP-5 (J,UC) 10021~  
BVP-5P (EK) 10011~

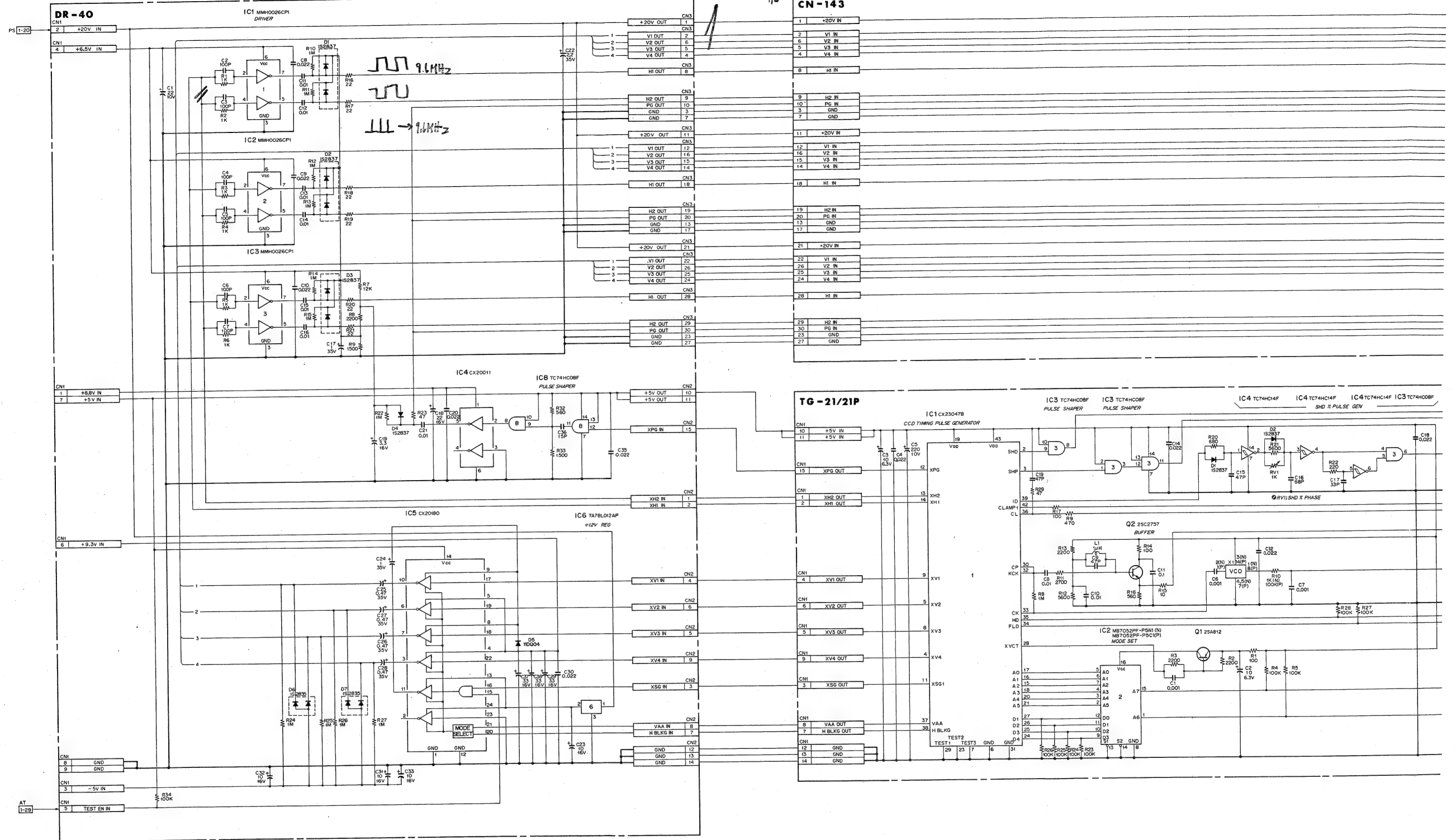


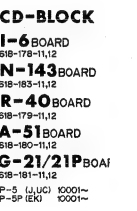
BI-6 BOARD  
— SOLDERING SIDE —  
1-618-178-11,12  
BVP-5 (J,UC) 10001~  
BVP-5P (EK) 10001~



TG-21P BOARD  
— SOLDERING SIDE —  
1-618-181-12  
BVP-5P (EK) 10011~

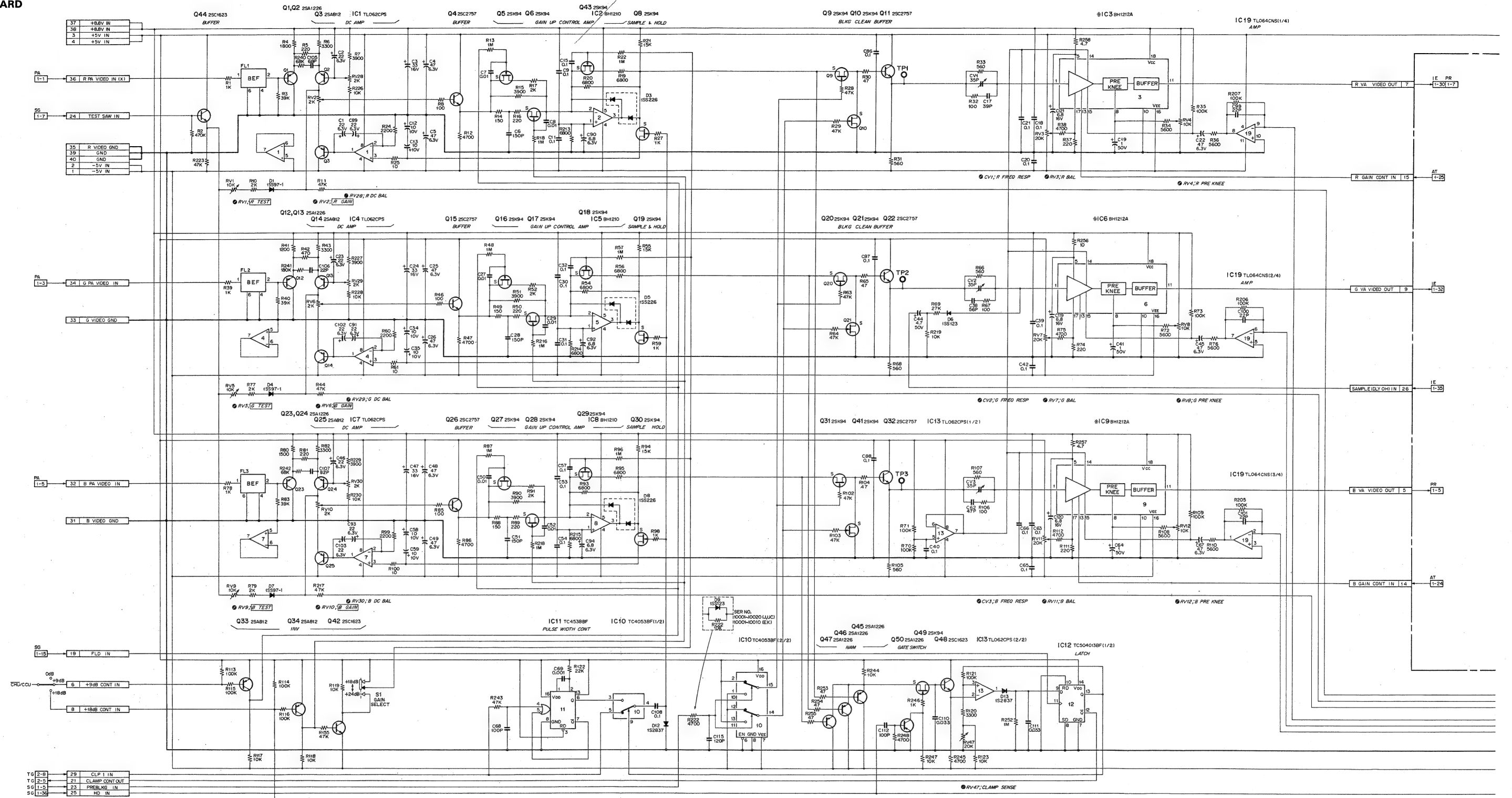
CCD-BLOCK  
BI-6 BOARD  
CN-143 BOARD  
DR-40 BOARD  
PA-51 BOARD  
TG-21/21P BOARD

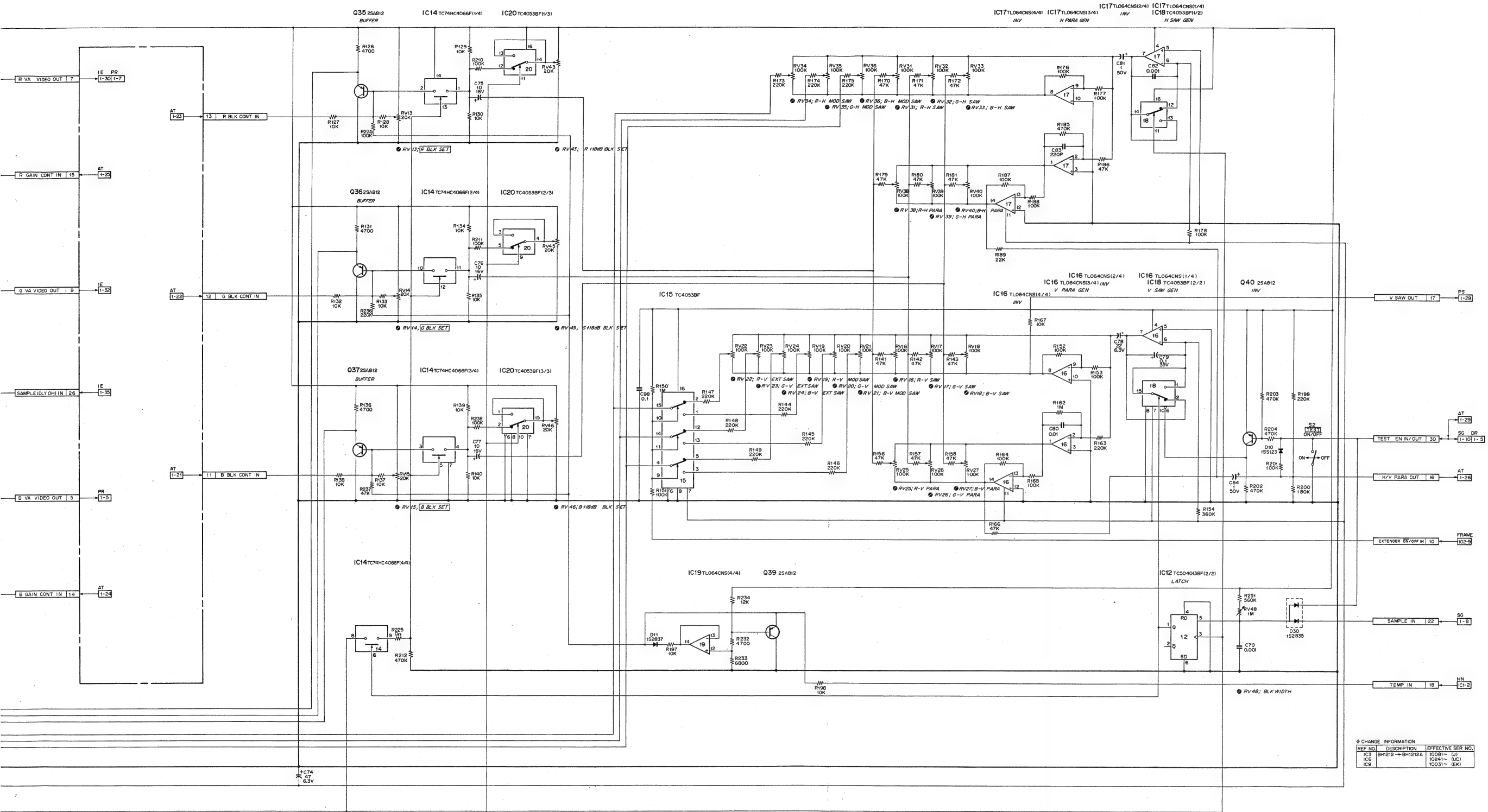






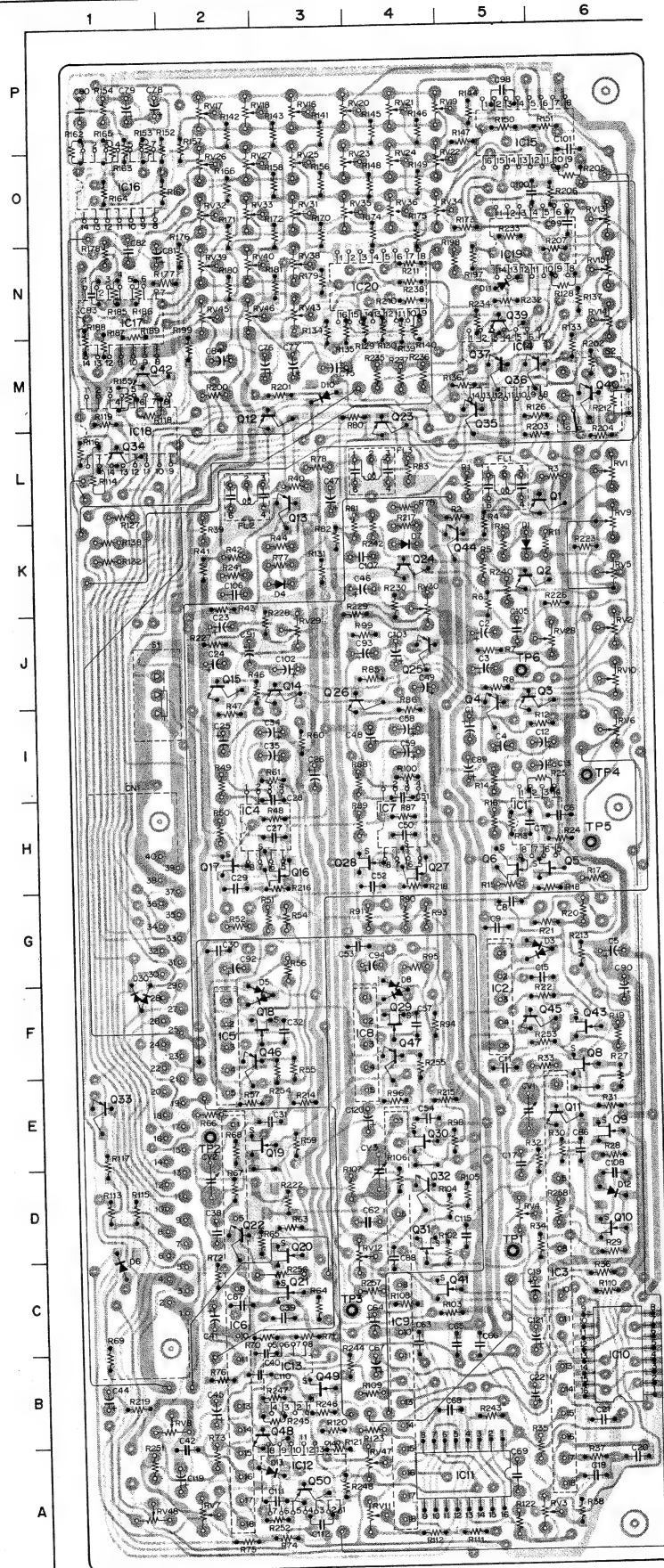
VA-37 BOARD





Serial No. 10051 ~ (J)  
 Serial No. 10141 ~ (UC)  
 Serial No. 10011 ~ (EK)

VA-37 BOARD



CN1	F-1	RV21	P-5
CV1	E-5	RV22	P-5
CV2	D-2	RV23	P-4
CV3	D-4	RV24	P-4
		RV25	P-3
D1	K-5	RV26	P-2
D3	G-5	RV27	P-3
D4	K-3	RV28	J-6
D5	G-2	RV29	K-3
D6	D-1	RV30	K-4
D7	L-4	RV31	O-3
D8	G-4	RV32	O-2
D10	M-3	RV33	O-3
D11	N-5	RV34	O-5
D12	D-6	RV35	O-4
D13	A-2	RV36	O-4
D30	G-1	RV38	O-3
		RV39	O-2
FL1	L-5	RV40	O-3
FL2	L-2	RV43	N-3
FL3	L-4		
		RV45	N-2
IC1	H-6	RV46	N-3
IC2	G-5	RV47	B-4
IC3	C-6	RV48	A-1
IC4	H-3		
IC5	F-2	S1	J-1
		S2	M-6
IC6	C-2	TP1	D-5
IC7	H-4	TP2	E-2
IC8	F-4	TP3	C-3
IC9	C-4	TP4	I-6
IC10	C-6	TP5	H-6
		TP6	J-5
IC11	A-5		
IC12	A-3		
IC13	B-3		
IC14	M-5		
IC15	P-5		
IC16	P-1		
IC17	N-1		
IC18	M-1		
IC19	O-6		
IC20	N-4		
Q1	L-6		
Q2	K-6		
Q3	J-6		
Q4	J-5		
Q5	H-6		
Q6	H-5		
Q8	F-6		
Q9	E-6		
Q10	D-6		
Q11	E-6		
Q12	M-3		
Q13	L-3		
Q14	J-3		
Q15	J-2		
Q16	H-3		
Q17	H-2		
Q18	F-2		
Q19	E-2		
Q20	D-3		
Q21	C-3		
Q22	D-2		
Q23	M-4		
Q24	K-4		
Q25	J-4		
Q26	J-4		
Q27	H-4		
Q28	H-4		
Q29	F-4		
Q30	E-4		
Q31	D-4		
Q32	D-4		
Q33	E-1		
Q34	M-1		
Q35	M-5		
Q36	M-6		
Q37	M-5		
Q39	N-5		
Q40	M-6		
Q41	C-4		
Q42	M-1		
Q43	F-6		
Q44	K-5		
Q45	F-6		
Q46	F-2		
Q47	F-4		
Q48	B-2		
Q49	B-3		
Q50	A-3		
RV1	L-6		
RV2	K-6		
RV3	A-5		
RV4	D-5		
RV5	K-6		
RV6	I-6		
RV7	A-2		
RV8	B-1		
RV9	L-6		
RV10	J-6		
RV11	A-4		
RV12	D-4		
RV13	D-6		
RV14	N-6		
RV15	N-6		
RV16	P-3		
RV17	P-2		
RV18	P-3		
RV19	P-5		
RV20	P-4		

BVP-5 (J, UC)  
 BVP-5P (EK)

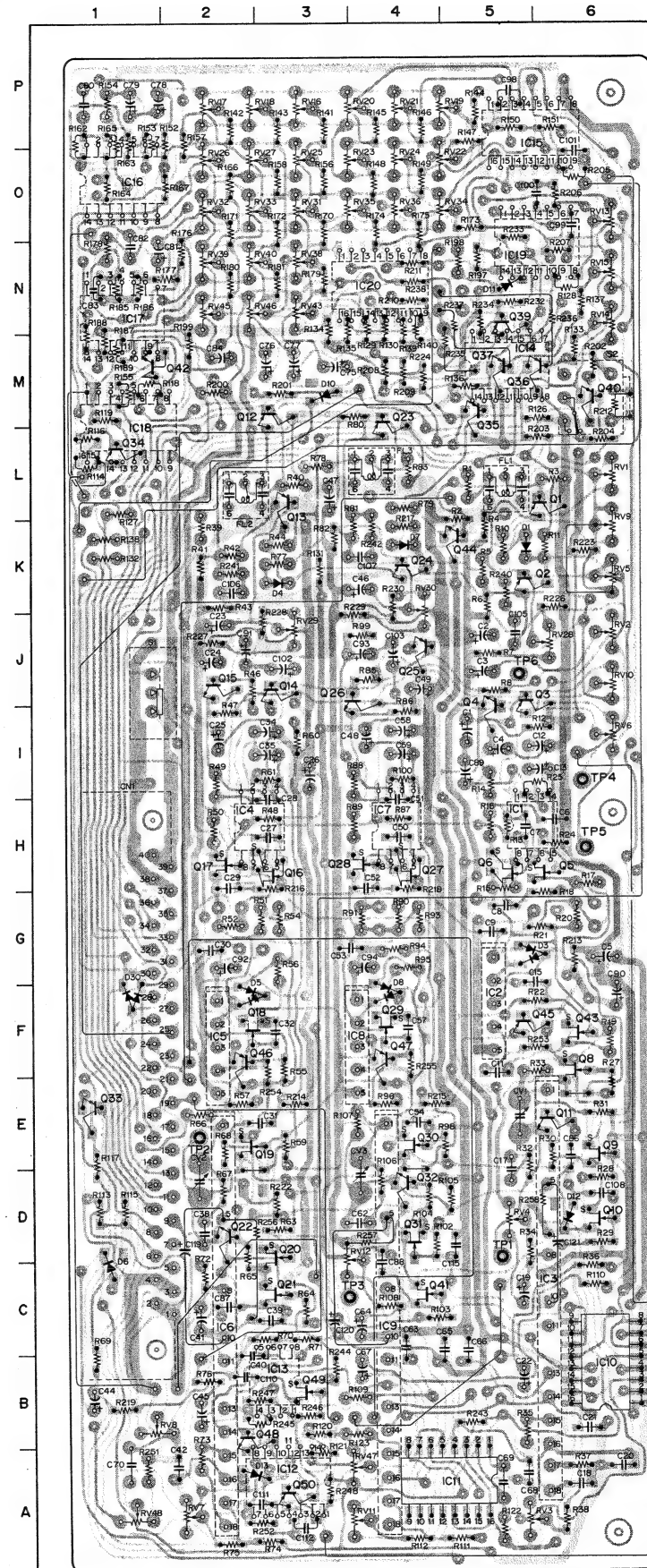
6-13(c)

VA-37 BOARD  
 -SOLDERING SIDE-  
 1-618-166-13  
 BVP-5 (J) 10051~  
 BVP-5 (UC) 10141~  
 BVP-5P (EK) 10011~



Serial No. 10021 ~ 10050 (J)  
Serial No. 10021 ~ 10140 (UC)

VA-37 BOARD



CN1	F - 1	RV21	P - 5
CV1	E - 5	RV22	P - 5
CV2	D - 2	RV23	P - 4
CV3	D - 4	RV24	P - 4
		RV25	P - 3
D1	K - 5	RV26	P - 2
D3	G - 5	RV27	P - 3
D4	K - 3	RV28	J - 6
D5	G - 2	RV29	K - 3
D6	D - 1	RV30	K - 4
D7	L - 4	RV31	O - 3
D8	G - 4	RV32	O - 2
D10	M - 3	RV33	O - 3
D11	N - 5	RV34	O - 5
D12	D - 6	RV35	O - 4
D13	A - 2	RV36	O - 4
D30	G - 1	RV38	O - 3
		RV39	O - 2
FL1	L - 5	RV40	O - 3
FL2	L - 2	RV43	N - 3
FL3	L - 4	RV45	N - 2
IC1	H - 6	RV46	N - 3
IC2	G - 5	RV47	B - 4
IC3	C - 6	RV48	A - 1
IC4	H - 3		
IC5	F - 2	S1	J - 1
		S2	M - 6
IC6	C - 2		
IC7	H - 4	TP1	D - 5
IC8	F - 4	TP2	E - 2
IC9	C - 4	TP3	C - 4
IC10	C - 6	TP4	I - 6
		TP5	H - 6
		TP6	J - 5
IC11	A - 5		
IC12	A - 3		
IC13	B - 3		
IC14	M - 5		
IC15	P - 5		
IC16	P - 1		
IC17	N - 1		
IC18	M - 1		
IC19	O - 6		
IC20	N - 4		
Q1	L - 6		
Q2	K - 6		
Q3	J - 6		
Q4	J - 5		
Q5	H - 6		
Q6	H - 5		
Q8	F - 6		
Q9	E - 6		
Q10	D - 6		
Q11	E - 6		
Q12	M - 3		
Q13	L - 3		
Q14	J - 3		
Q15	J - 2		
Q16	H - 3		
Q17	H - 2		
Q18	F - 2		
Q19	E - 2		
Q20	D - 3		
Q21	C - 3		
Q22	D - 2		
Q23	M - 4		
Q24	K - 4		
Q25	J - 4		
Q26	J - 4		
Q27	H - 4		
Q28	H - 4		
Q29	F - 4		
Q30	E - 4		
Q31	D - 4		
Q32	D - 4		
Q33	E - 1		
Q34	M - 1		
Q35	M - 5		
Q36	M - 6		
Q37	M - 5		
Q38	N - 5		
Q39	M - 6		
Q40	C - 4		
Q41	M - 1		
Q42	M - 1		
Q43	F - 6		
Q44	K - 5		
Q45	F - 6		
Q46	F - 2		
Q47	F - 4		
Q48	B - 2		
Q49	B - 3		
Q50	A - 3		
RV1	L - 6		
RV2	K - 6		
RV3	A - 5		
RV4	D - 5		
RV5	K - 6		
RV6	I - 6		
RV7	A - 2		
RV8	B - 1		
RV9	L - 6		
RV10	J - 6		
RV11	A - 4		
RV12	D - 4		
RV13	D - 6		
RV14	N - 6		
RV15	N - 6		
RV16	P - 3		
RV17	P - 2		
RV18	P - 3		
RV19	P - 5		
RV20	P - 4		

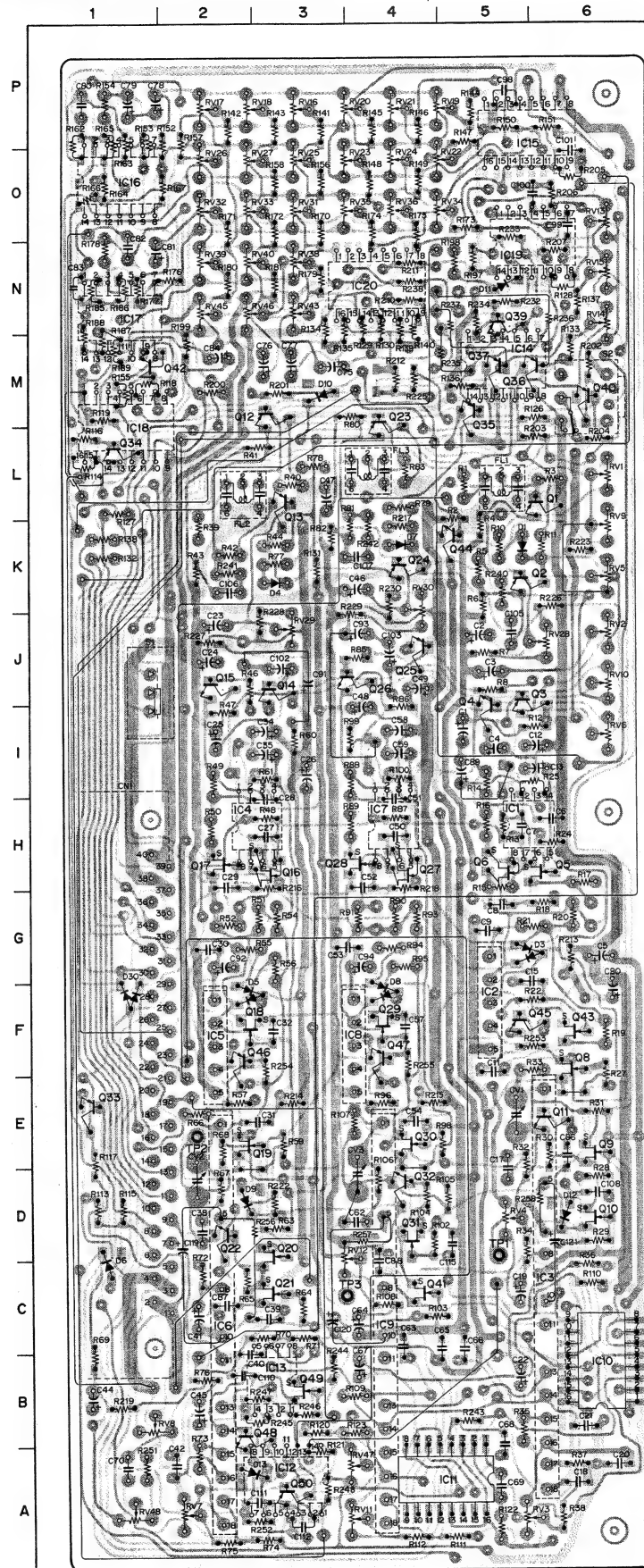
BVP-5 (J, UC)  
BVP-5P (EK)

6-13(b)

VA-37 BOARD  
-SOLDERING SIDE-  
1-618-166-12  
BVP-5 (J) 10021~10050  
BVP-5 (UC) 10021~10140

Serial No. 10001 ~ 10020 (J)  
Serial No. 10001 ~ 10020 (UC)  
Serial No. 10001 ~ 10010 (EK)

VA-37 BOARD



CN1	F - 1	RV21	P - 5
CV1	E - 5	RV22	P - 5
CV2	D - 2	RV23	P - 4
CV3	D - 4	RV24	P - 3
		RV25	P - 3
D1	K - 5	RV26	P - 2
D3	G - 5	RV27	P - 3
D4	K - 3	RV28	J - 6
D5	G - 2	RV29	K - 3
D6	D - 1	RV30	K - 4
D7	L - 4	RV31	O - 3
D8	G - 4	RV32	O - 2
D9	D - 2	RV33	O - 3
		RV34	O - 5
D10	M - 3	RV35	O - 4
D11	N - 5		
D12	D - 6	RV36	O - 4
D13	A - 2	RV38	O - 3
D30	G - 1	RV39	O - 2
		RV40	O - 3
FL1	L - 5	RV43	N - 3
FL2	L - 2		
FL3	L - 4	RV45	N - 2
		RV46	N - 3
IC1	H - 6	RV47	B - 4
IC2	G - 5	RV48	A - 1
IC3	C - 6		
IC4	H - 3	S1	J - 1
IC5	F - 2	S2	M - 6
IC8	C - 2	TP1	D - 5
IC7	H - 4	TP2	E - 2
IC8	F - 4	TP3	C - 4
IC9	C - 4		
IC10	C - 6		
IC11	A - 5		
IC12	A - 3		
IC13	B - 3		
IC14	M - 5		
IC15	P - 5		
IC16	P - 1		
IC17	N - 1		
IC18	M - 1		
IC19	O - 6		
IC20	N - 4		
Q1	L - 6		
Q2	K - 6		
Q3	J - 6		
Q4	J - 5		
Q5	H - 6		
Q6	H - 5		
Q8	F - 6		
Q9	E - 6		
Q10	D - 6		
Q11	E - 6		
Q12	M - 3		
Q13	L - 3		
Q14	J - 3		
Q15	J - 2		
Q16	H - 3		
Q17	H - 2		
Q18	F - 2		
Q19	E - 2		
Q20	D - 3		
Q21	C - 3		
Q22	D - 2		
Q23	M - 4		
Q24	K - 4		
Q25	J - 4		
Q26	J - 4		
Q27	H - 4		
Q28	H - 4		
Q29	F - 4		
Q30	E - 4		
Q31	D - 4		
Q32	E - 4		
Q33	E - 1		
Q34	M - 1		
Q35	M - 5		
Q36	M - 6		
Q37	M - 5		
Q38	N - 5		
Q40	M - 6		
Q41	C - 4		
Q42	N - 2		
Q43	F - 6		
Q44	K - 5		
Q45	F - 6		
Q46	F - 2		
Q47	F - 4		
Q48	B - 2		
Q49	B - 3		
Q50	A - 3		
RV1	L - 6		
RV2	K - 6		
RV3	A - 5		
RV4	D - 5		
RV5	K - 6		
RV6	I - 6		
RV7	A - 2		
RV8	B - 1		
RV9	L - 6		
RV10	J - 6		
RV11	A - 4		
RV12	D - 4		
RV13	D - 6		
RV14	N - 6		
RV15	N - 6		
RV16	P - 3		
RV17	P - 2		
RV18	P - 3		
RV19	P - 5		
RV20	P - 4		

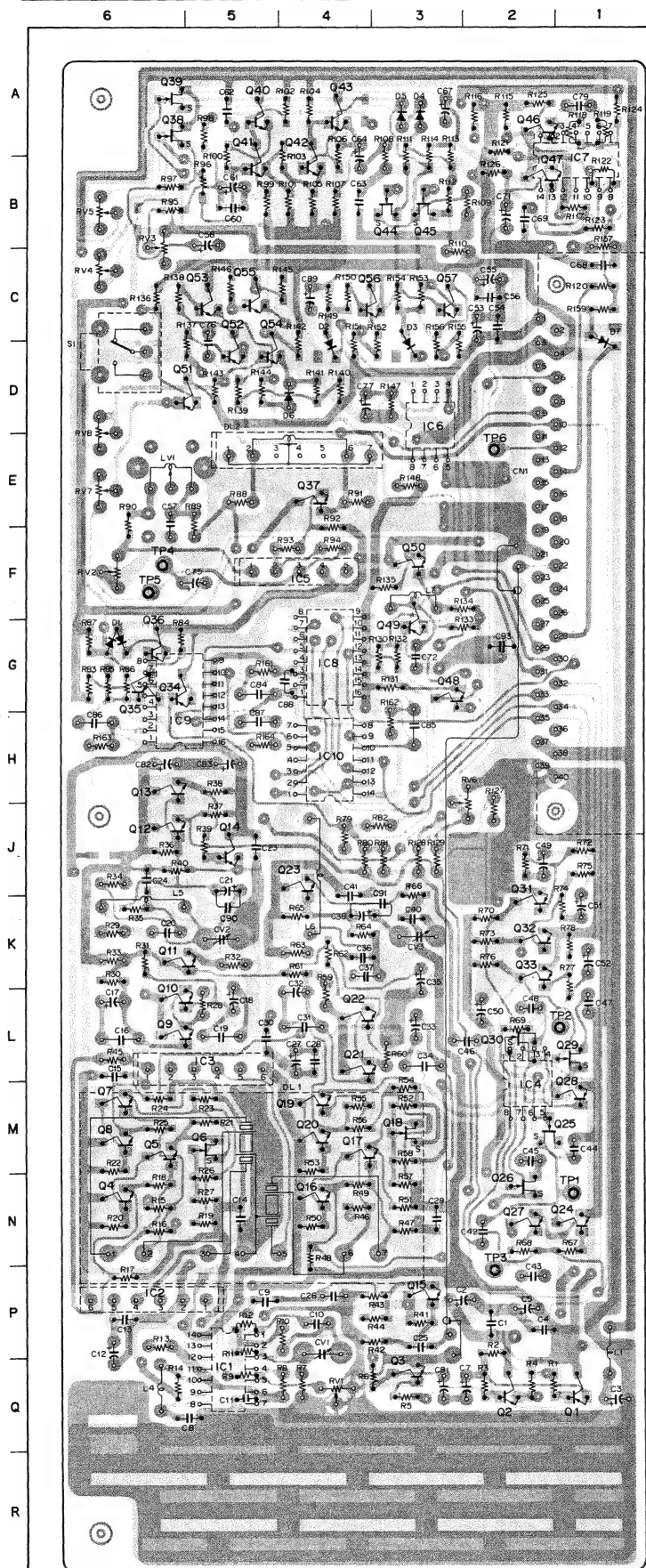
BVP-5 (J, UC)  
BVP-5P (EK)

6-13(a)

VA-37 BOARD  
-SOLDERING SIDE-  
1-618-166-11  
BVP-5 (J, UC) 10001 ~ 10020  
BVP-5P (EK) 10001 ~ 10010

Serial No. 10021 ~ (J)  
 Serial No. 10021 ~ (UC)  
 Serial No. 10011 ~ (EK)

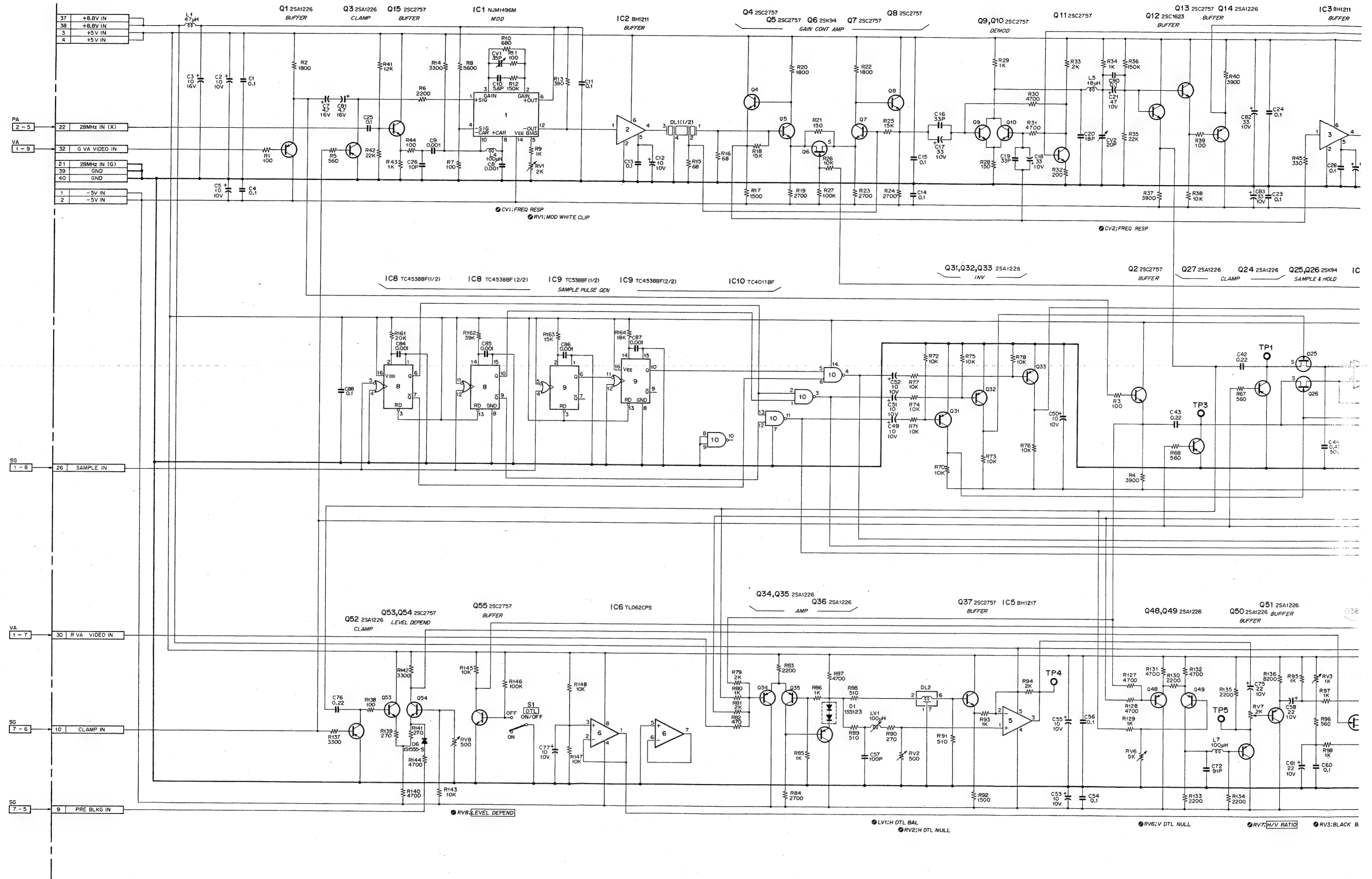
IE-15/15P BOARD

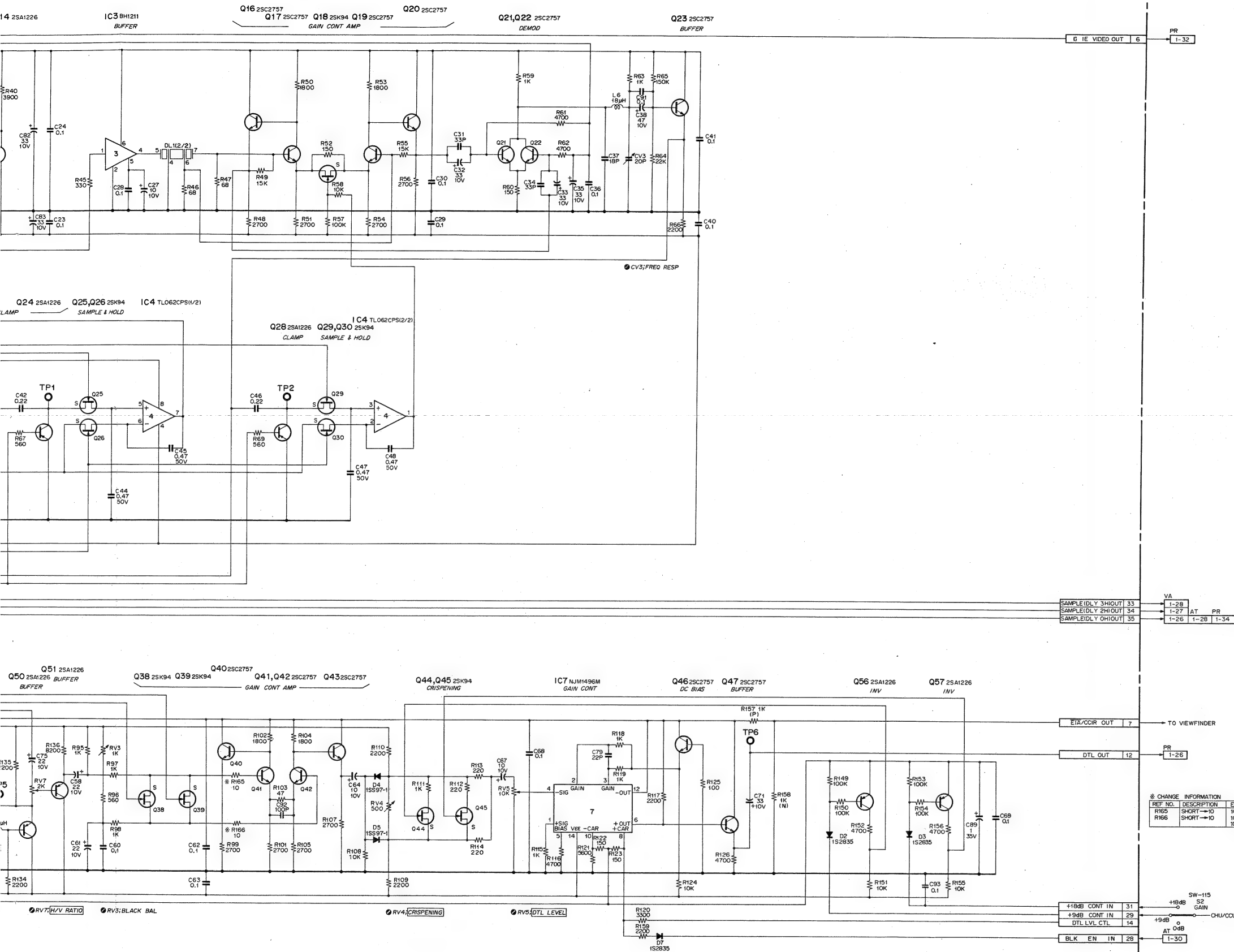


- CN1 D-1
- CV1 P-4
- CV2 K-5
- CV3 K-3
- D1 G-6
- D2 D-4
- D3 D-3
- D4 A-3
- D5 A-3
- D6 D-4
- D7 C-1
- DL1 N-4
- DL2 E-4
- IC1 Q-5
- IC2 P-6
- IC3 L-5
- IC4 M-2
- IC5 F-4
- IC6 D-3
- IC7 B-1
- IC8 G-4
- IC9 G-6
- IC10 H-4
- LV1 E-6
- Q1 Q-1
- Q2 Q-2
- Q3 Q-3
- Q4 N-6
- Q5 M-6
- Q6 M-5
- Q7 M-6
- Q8 M-6
- Q9 L-6
- Q10 L-6
- Q11 K-6
- Q12 J-6
- Q13 H-6
- Q14 J-5
- Q15 P-3
- Q16 N-4
- Q17 M-4
- Q18 M-3
- Q19 M-4
- Q20 M-4
- Q21 L-4
- Q22 L-4
- Q23 J-4
- Q24 N-1
- Q25 M-1
- Q26 N-2
- Q27 N-2
- Q28 M-1
- Q29 L-1
- Q30 L-2
- Q31 K-2
- Q32 K-2
- Q33 K-2
- Q34 G-6
- Q35 G-6
- Q36 G-6
- Q37 E-4
- Q38 A-6
- Q39 A-6
- Q40 A-5
- Q41 B-5
- Q42 B-4
- Q43 A-4
- Q44 B-3
- Q45 B-3
- Q46 A-2
- Q47 B-2
- Q48 G-3
- Q49 F-3
- Q50 F-3
- Q51 D-5
- Q52 D-5
- Q53 C-5
- Q54 D-5
- Q55 C-5
- Q56 C-3
- Q57 C-3
- RV1 Q-4
- RV2 F-6
- RV3 B-6
- RV4 C-6
- RV5 B-6
- RV6 H-2
- RV7 E-6
- RV8 D-6
- S1 D-6
- TP1 N-1
- TP2 L-1
- TP3 D-2
- TP4 F-6
- TP5 F-6
- TP6 E-2

IE-15P BOARD  
 -SOLDERING SIDE-  
 1-618-165-12  
 BVP-5P (EK) 10011~

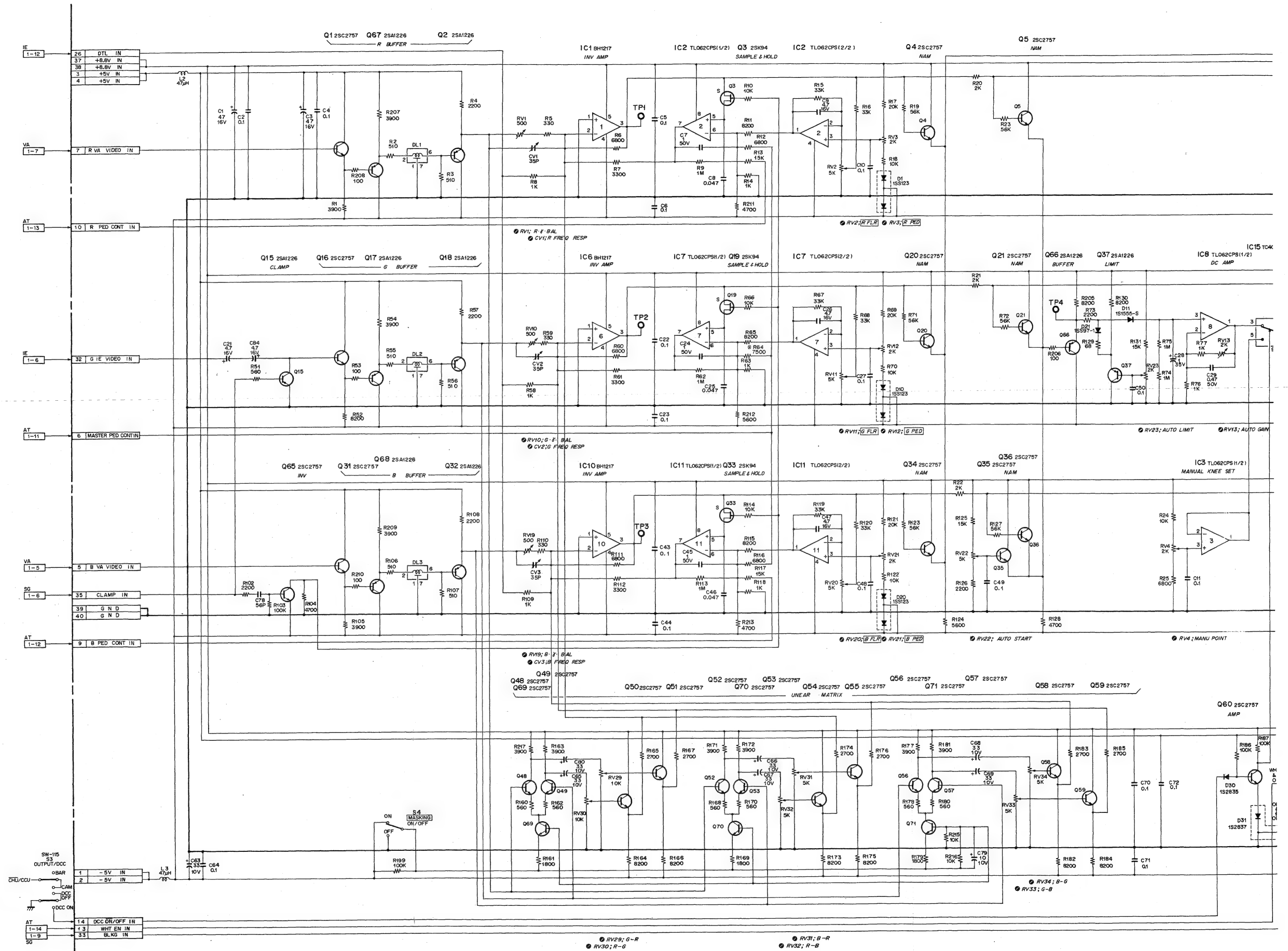
IE-15/15P BOARD

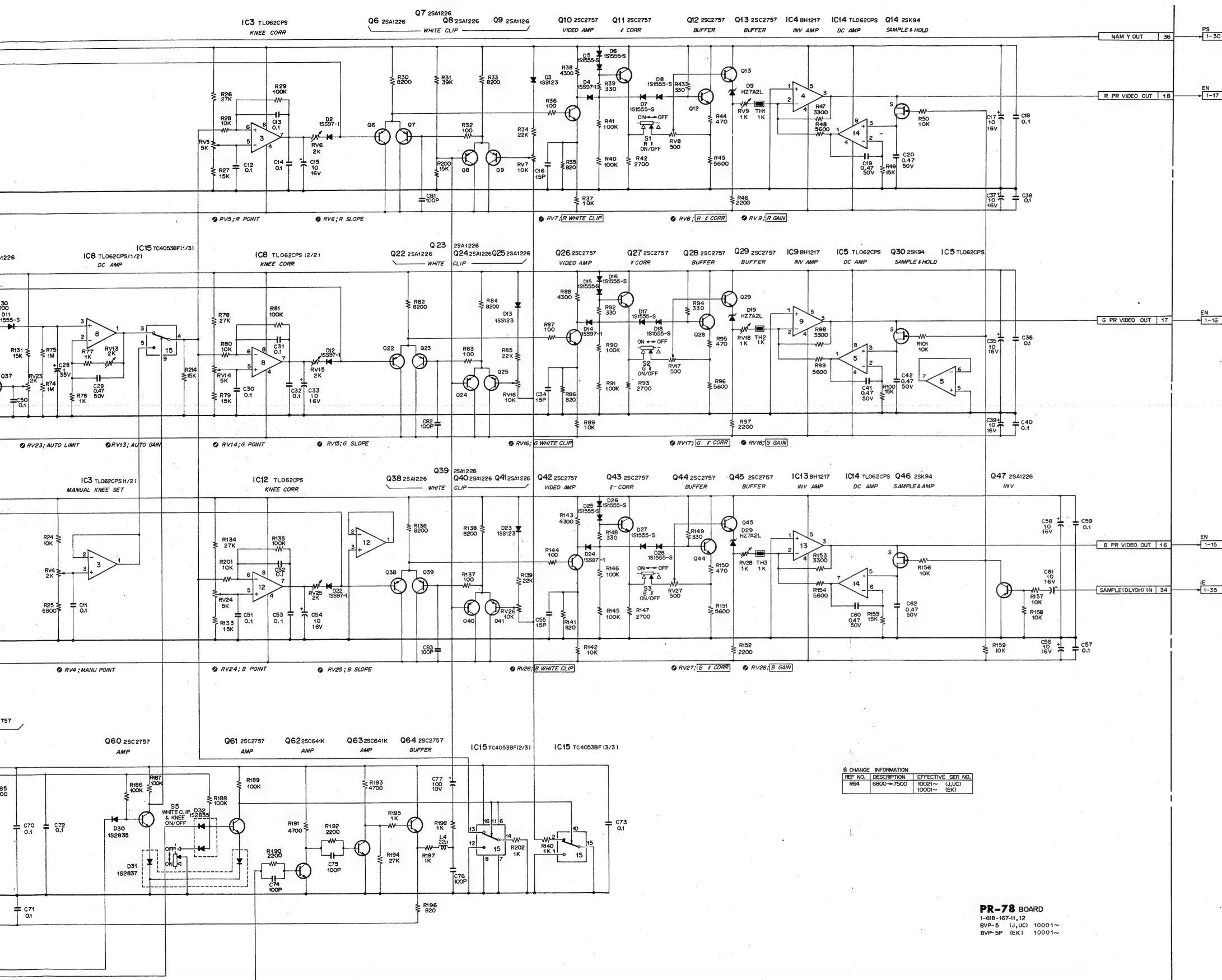






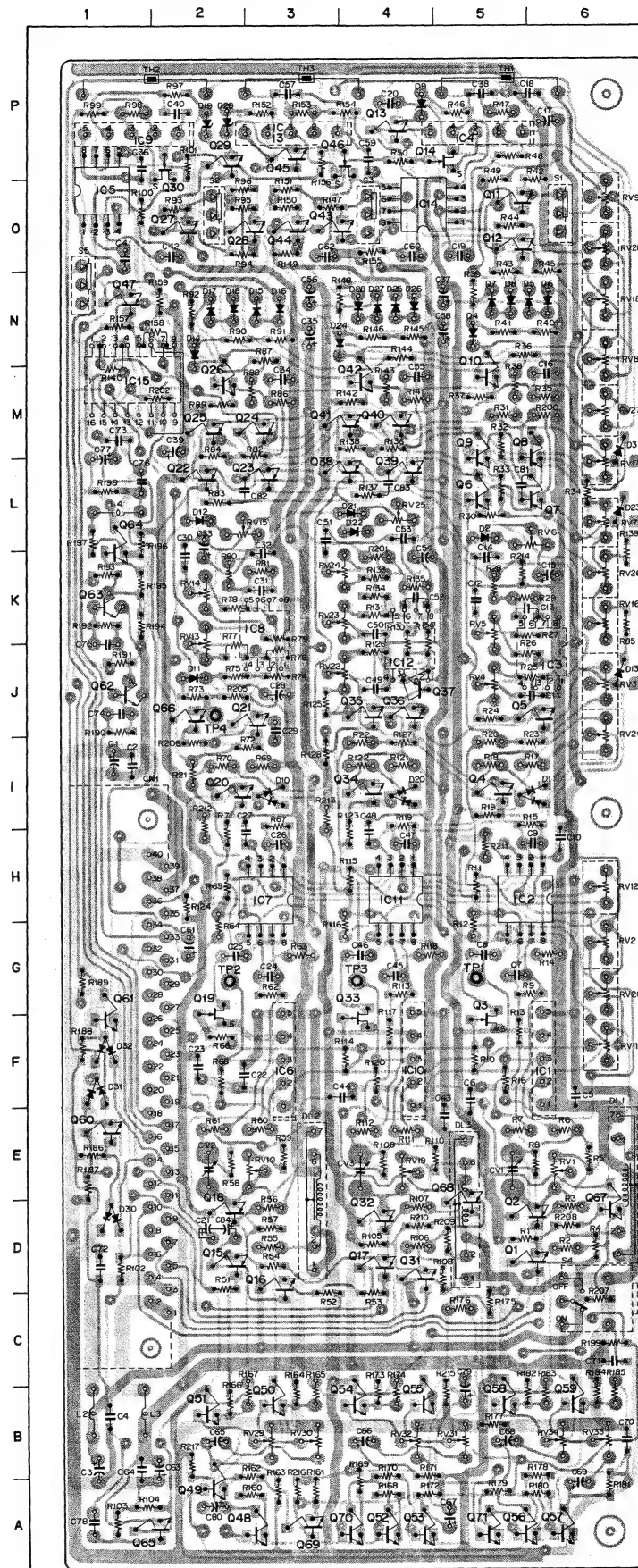
## PR-78 BOARD





Serial No. 10001 ~ 10020 (J)  
 Serial No. 10001 ~ 10020 (UC)  
 Serial No. 10001 ~ 10010 (EK)

## PR-78 BOARD



CN1	F - 1	Q56	A - 5
CV1	E - 5	Q57	A - 6
CV2	E - 2	Q58	B - 5
CV3	E - 4	Q59	B - 6
		Q60	E - 1
D1	I - 8	Q61	G - 1
D2	L - 5	Q62	J - 1
D3	M - 6	Q63	K - 1
D4	N - 5	Q64	L - 1
D5	N - 6	Q65	A - 1
D6	N - 6	Q66	J - 2
D7	N - 5	Q67	D - 6
D8	N - 5	Q68	D - 5
D9	P - 4	Q69	A - 3
D10	I - 3	Q70	A - 4
		Q71	A - 5
D11	J - 2	RV1	E - 6
D12	L - 2	RV2	G - 6
D13	J - 6	RV3	J - 6
D14	N - 2	RV4	J - 5
D15	N - 3	RV5	K - 5
D16	N - 3	RV6	L - 6
D17	N - 2	RV7	L - 6
D18	N - 2	RV8	N - 6
D19	P - 2	RV9	O - 6
D20	I - 4	RV10	E - 3
D21	L - 4	RV11	F - 6
D22	L - 4	RV12	H - 6
D23	L - 6	RV13	J - 2
D24	N - 4	RV14	K - 2
D25	N - 4	RV15	L - 2
D26	N - 4	RV16	K - 6
D27	N - 4	RV17	L - 6
D28	N - 4	RV18	N - 6
D29	P - 2	RV19	E - 4
D30	D - 1	RV20	G - 6
D31	F - 1	RV21	I - 6
D32	F - 1	RV22	J - 4
DL1	E - 6	RV23	K - 4
DL2	E - 3	RV24	K - 4
DL3	E - 5	RV25	L - 4
IC1	F - 5	RV26	K - 6
IC2	H - 6	RV27	M - 6
IC3	J - 6	RV28	O - 6
IC4	O - 5	RV29	B - 3
IC5	O - 1	RV30	B - 3
IC6	F - 2	RV31	B - 5
IC7	H - 3	RV32	B - 4
IC8	K - 3	RV33	B - 6
IC9	O - 1	RV34	B - 6
IC10	F - 4		
IC11	H - 4	S1	O - 6
IC12	J - 4	S2	O - 2
IC13	O - 3	S3	O - 4
IC14	O - 4	S4	C - 6
IC15	M - 1	S5	N - 1
Q1	D - 6	TH1	P - 5
Q2	D - 6	TH2	P - 1
Q3	F - 5	TH3	P - 3
Q4	I - 5	TP1	G - 5
Q5	J - 6	TP2	G - 2
Q6	L - 5	TP3	G - 4
Q7	L - 6	TP4	J - 2
Q8	M - 6		
Q9	M - 5		
Q10	M - 5		
Q11	O - 5		
Q12	O - 5		
Q13	P - 4		
Q14	P - 5		
Q15	D - 2		
Q16	D - 3		
Q17	D - 4		
Q18	D - 2		
Q19	F - 2		
Q20	I - 2		
Q21	J - 3		
Q22	L - 2		
Q23	L - 3		
Q24	M - 3		
Q25	M - 2		
Q26	M - 2		
Q27	O - 2		
Q28	O - 3		
Q29	P - 2		
Q30	P - 2		
Q31	D - 4		
Q32	D - 4		
Q33	F - 4		
Q34	I - 4		
Q35	J - 4		
Q36	J - 4		
Q37	J - 4		
Q38	L - 4		
Q39	L - 4		
Q40	M - 4		
Q41	M - 4		
Q42	M - 4		
Q43	O - 3		
Q44	O - 3		
Q45	P - 3		
Q46	P - 4		
Q47	N - 1		
Q48	A - 3		
Q49	A - 2		
Q50	B - 3		
Q51	B - 2		
Q52	A - 4		
Q53	A - 4		
Q54	B - 4		
Q55	B - 4		

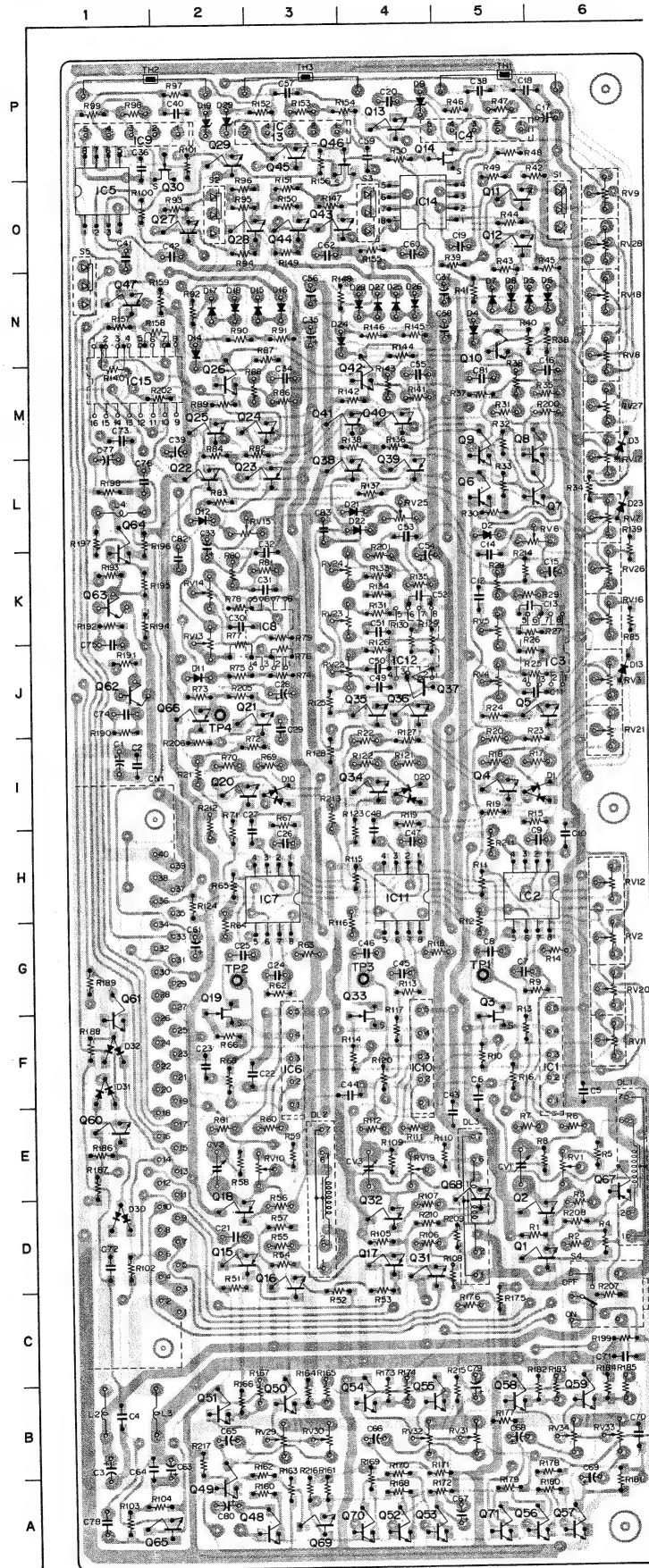
PR-78 BOARD  
 — SOLDERING SIDE —  
 1-618-167-11  
 BVP-5 (J, UC) 10001 ~ 10020  
 BVP-5P (EK) 10001 ~ 10010

BVP-5 (J, UC)  
 BVP-5P (EK)



Serial No. 10021 ~ (J)  
 Serial No. 10021 ~ (UC)  
 Serial No. 10011 ~ (EK)

## PR-78 BOARD



CN1	F-1	Q56	A-5
CV1	E-5	Q57	A-6
CV2	E-2	Q58	B-5
CV3	E-4	Q59	B-6
		Q60	E-1
D1	I-6	Q61	G-1
D2	L-5	Q62	J-1
D3	M-6	Q63	K-1
D4	N-5	Q64	L-1
D5	N-6	Q65	A-1
D6	N-6	Q66	J-2
D7	N-5	Q67	D-6
D8	N-5	Q68	D-5
D9	P-4	Q69	A-3
D10	I-3	Q70	A-4
		Q71	A-5
D11	J-2	RV1	E-6
D12	L-2	RV2	G-6
D13	J-6	RV3	J-6
D14	N-2	RV4	J-5
D15	N-3	RV5	K-5
D16	N-3	RV6	L-6
D17	N-2	RV7	L-6
D18	N-2	RV8	N-6
D19	P-2	RV9	O-6
D20	I-4	RV10	E-3
D21	L-4	RV11	F-6
D22	L-4	RV12	H-6
D23	L-6	RV13	J-2
D24	N-4	RV14	K-2
D25	N-4	RV15	L-2
D26	N-4	RV16	K-6
D27	N-4	RV17	L-6
D28	N-4	RV18	N-6
D29	P-2	RV19	E-4
D30	D-1	RV20	G-6
D31	F-1	RV21	I-6
D32	F-1	RV22	J-4
DL1	E-6	RV23	K-4
DL2	E-3	RV24	K-4
DL3	E-5	RV25	L-4
IC1	F-5	RV26	K-6
IC2	H-6	RV27	M-6
IC3	J-6	RV28	O-6
IC4	O-5	RV29	B-3
IC5	O-1	RV30	B-3
IC6	F-2	RV31	B-5
IC7	H-3	RV32	B-4
IC8	K-3	RV33	B-6
IC9	O-1	RV34	B-6
IC10	F-4	S1	O-6
IC11	H-4	S2	O-2
IC12	J-4	S3	O-4
IC13	O-3	S4	C-6
IC14	O-4	S5	N-1
IC15	M-1	TH1	P-5
Q1	D-6	TH2	P-3
Q2	D-6	TH3	
Q3	F-5	TP1	G-5
Q4	I-5	TP2	G-2
Q5	J-6	TP3	G-4
		TP4	J-2
Q6	L-5		
Q7	L-6		
Q8	M-6		
Q9	M-5		
Q10	N-5		
Q11	O-5		
Q12	O-5		
Q13	P-4		
Q14	P-5		
Q15	D-2		
Q16	D-3		
Q17	D-4		
Q18	D-2		
Q19	F-2		
Q20	I-2		
Q21	J-3		
Q22	L-2		
Q23	L-3		
Q24	M-3		
Q25	M-2		
Q26	M-2		
Q27	O-2		
Q28	O-3		
Q29	P-2		
Q30	P-2		
Q31	D-4		
Q32	D-4		
Q33	F-4		
Q34	I-4		
Q35	J-4		
Q36	J-4		
Q37	J-4		
Q38	L-4		
Q39	L-4		
Q40	M-4		
Q41	M-4		
Q42	M-4		
Q43	O-3		
Q44	O-3		
Q45	P-3		
Q46	P-4		
Q47	N-1		
Q48	A-3		
Q49	A-2		
Q50	B-3		
Q51	B-2		
Q52	A-4		
Q53	A-4		
Q54	B-4		
Q55	B-4		

## PR-78 BOARD

— SOLDERING SIDE —

1-616 167-12

BVP-5 (J, UC) 10021~

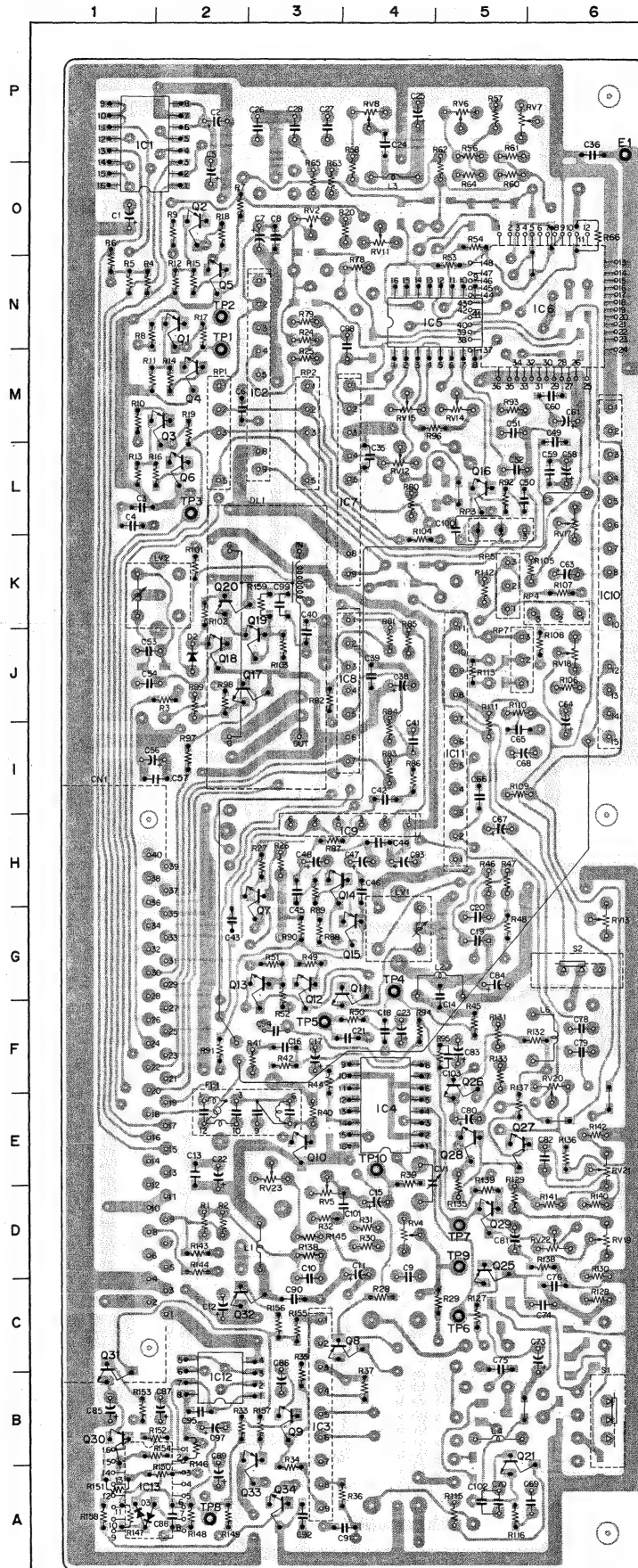
BVP-5P (EK) 10011~

BVP-5 (J, UC)  
 BVP-5P (EK)

6-23(b)

Serial No. 10021 ~ (J)  
 Serial No. 10021 ~ (UC)  
 Serial No. 10011 ~ (EK)

EN-41/41P BOARD



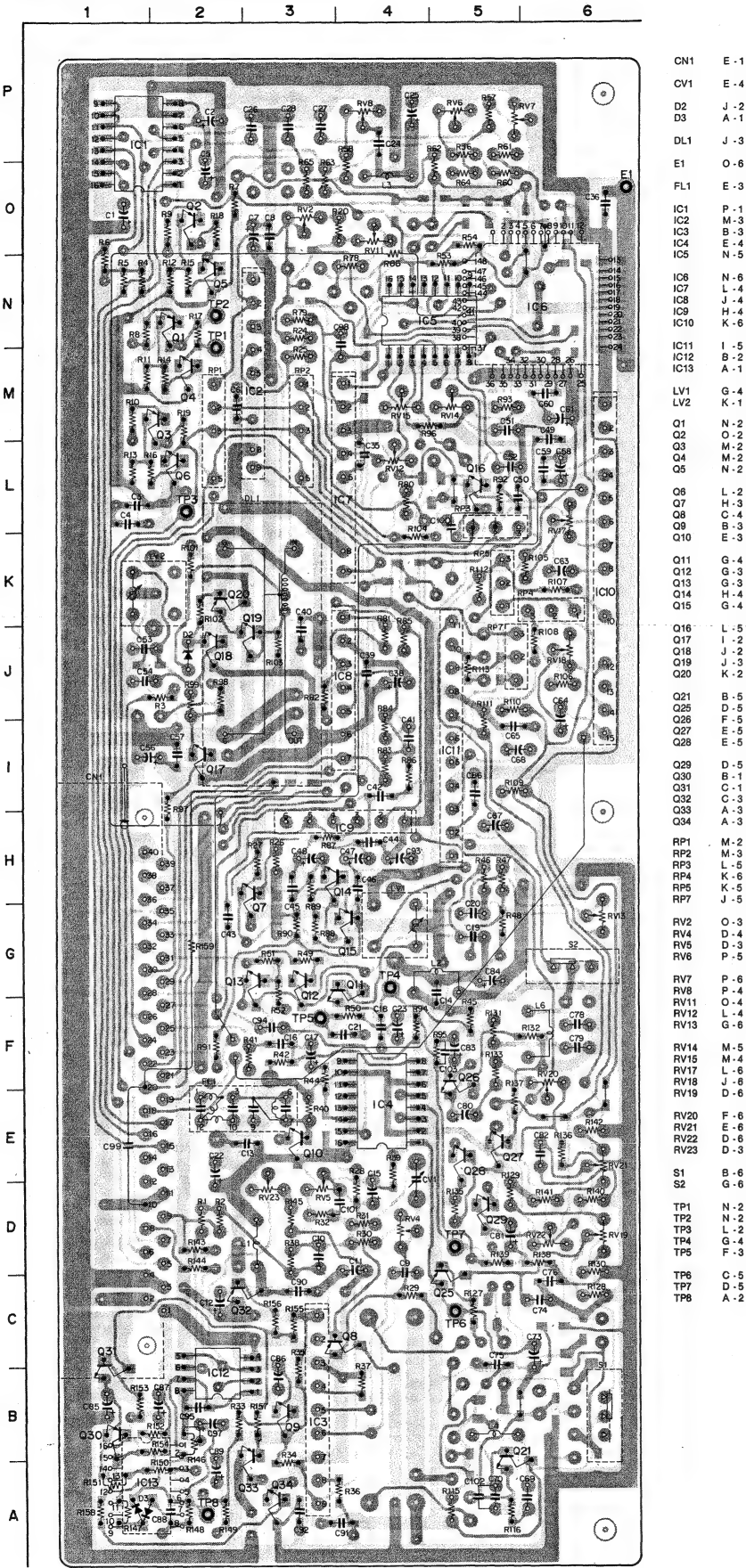
CN1 E-1  
 CV1 E-4  
 D2 J-2  
 D3 A-1  
 DL1 J-3  
 E1 O-6  
 FL1 E-3  
 IC1 P-1  
 IC2 M-3  
 IC3 B-3  
 IC4 E-4  
 IC5 N-5  
 IC6 N-6  
 IC7 L-4  
 IC8 J-4  
 IC9 H-4  
 IC10 K-6  
 IC11 I-5  
 IC12 B-2  
 IC13 A-1  
 LV1 G-4  
 LV2 K-1  
 Q1 N-2  
 Q2 O-2  
 Q3 M-2  
 Q4 M-2  
 Q5 N-2  
 Q6 L-2  
 Q7 H-3  
 Q8 C-4  
 Q9 B-3  
 Q10 E-3  
 Q11 G-4  
 Q12 G-3  
 Q13 G-3  
 Q14 H-4  
 Q15 G-4  
 Q16 L-5  
 Q17 J-3  
 Q18 J-2  
 Q19 J-3  
 Q20 K-2  
 Q21 B-5  
 Q25 D-6  
 Q26 F-5  
 Q27 E-5  
 Q28 E-5  
 Q29 D-5  
 Q30 B-1  
 Q31 C-1  
 Q32 C-3  
 Q33 A-3  
 Q34 A-3  
 PR1 M-2  
 PR2 M-3  
 PR3 L-5  
 PR4 K-6  
 PR5 K-5  
 PR7 J-5  
 RV2 O-3  
 RV4 D-4  
 RV5 D-3  
 RV6 P-5  
 RV7 P-6  
 RV8 P-4  
 RV11 O-4  
 RV12 L-4  
 RV13 G-6  
 RV14 M-5  
 RV15 M-4  
 RV17 L-6  
 RV18 J-6  
 RV19 D-6  
 RV20 F-6  
 RV21 E-6  
 RV22 D-6  
 RV23 D-3  
 S1 B-6  
 S2 G-6  
 TP1 N-2  
 TP2 N-2  
 TP3 L-2  
 TP4 G-4  
 TP5 F-3  
 TP6 C-5  
 TP7 D-5  
 TP8 A-2  
 TP9 D-5  
 TP10 E-4  
 TP11 D-3

EN-41P BOARD  
 -SOLDERING SIDE-  
 I-618-168-22  
 BVP-SPIEX 10011~

BVP-5 (J, UC)  
 BVP-5P (EK)

Serial No. 10001 ~ 10020 (J)  
Serial No. 10001 ~ 10020 (UC)  
Serial No. 10001 ~ 10010 (EK)

EN-41/41P BOARD

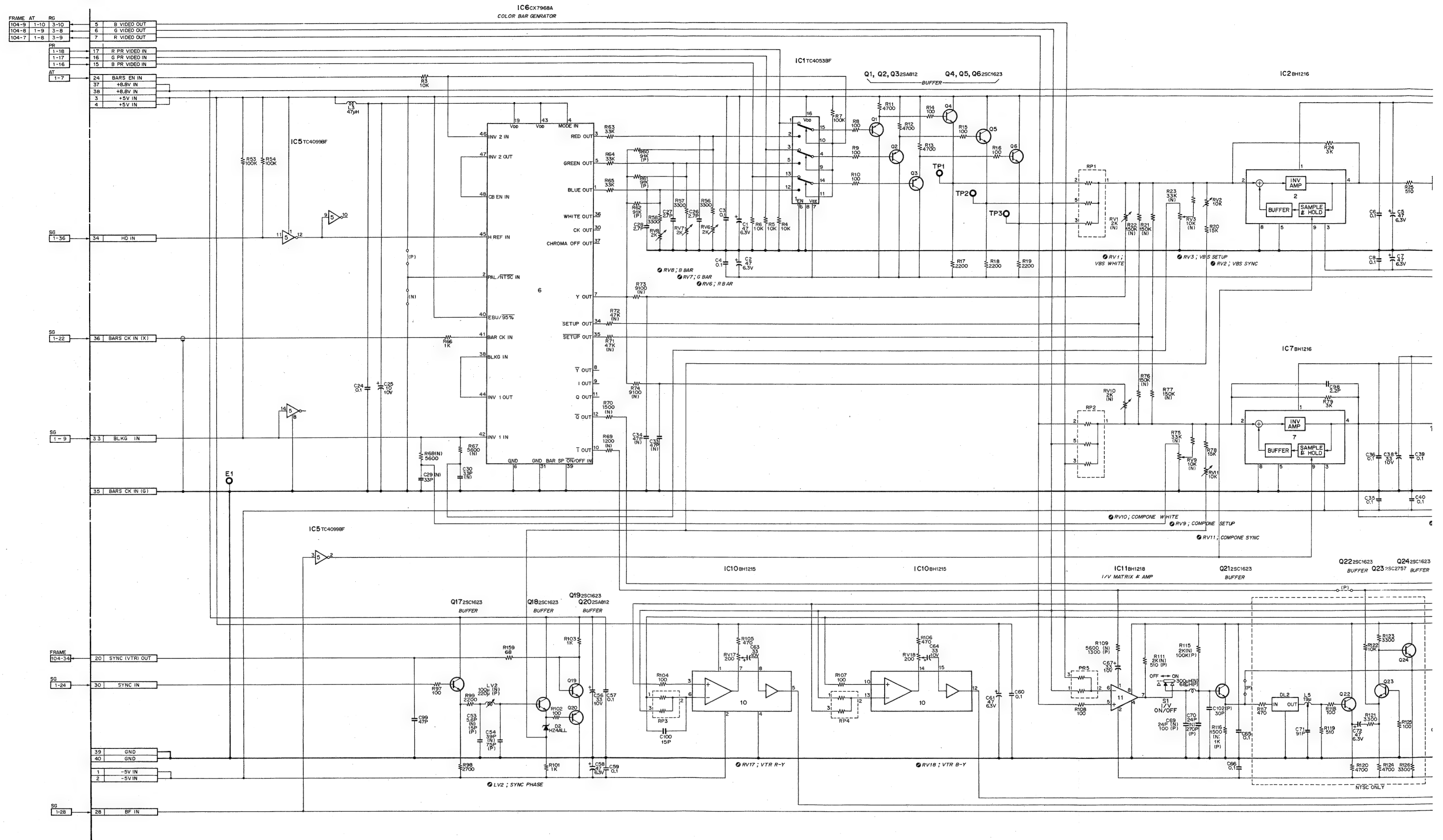


EN-41P BOARD  
- SOLDERING SIDE -  
1-618-168-21  
BVP-SPIEK1 10001-10010

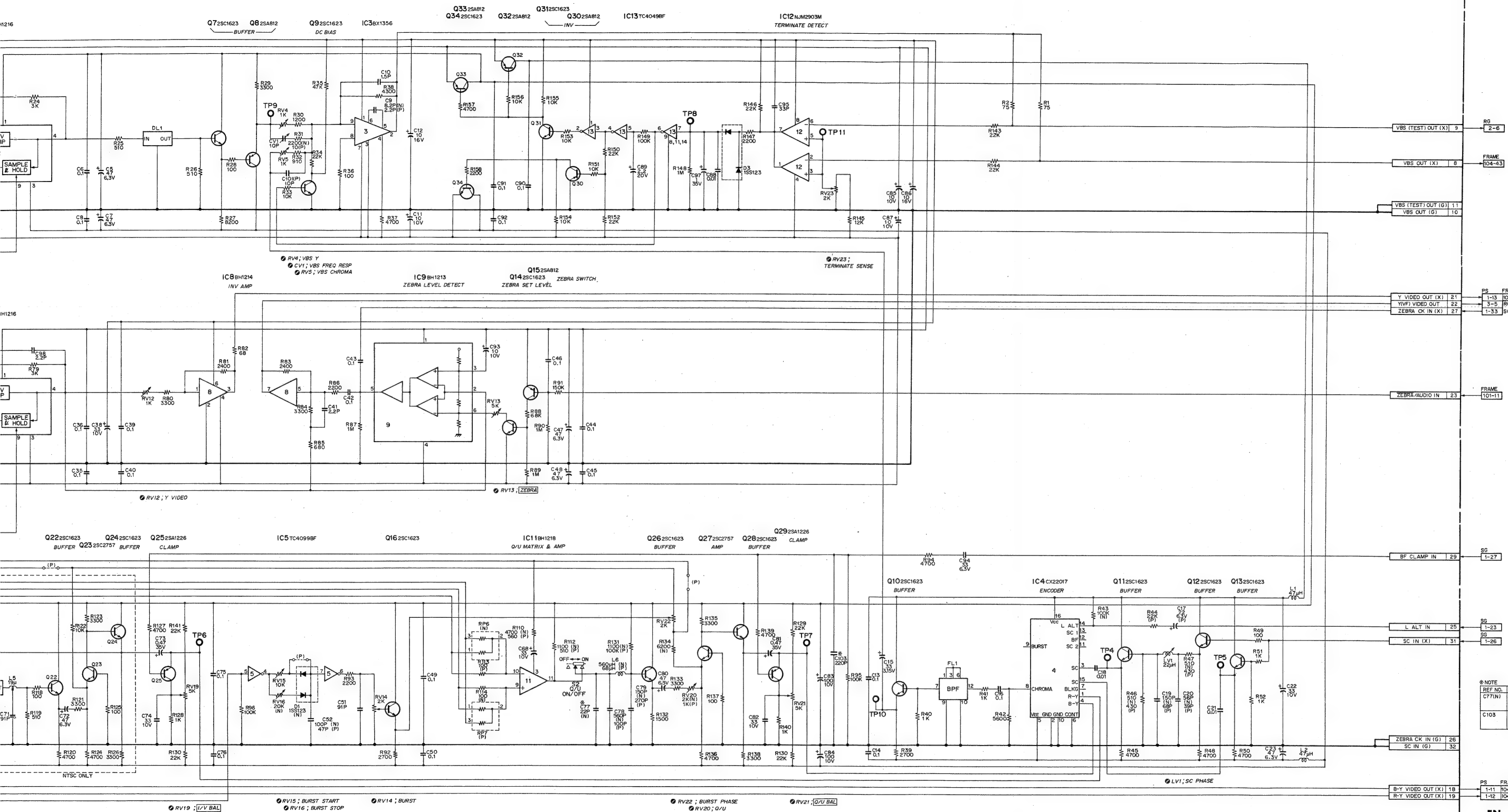
6-24(a)

BVP-5 (J, UC)  
BVP-5P (EK)

**EN-41/41P BOARD**





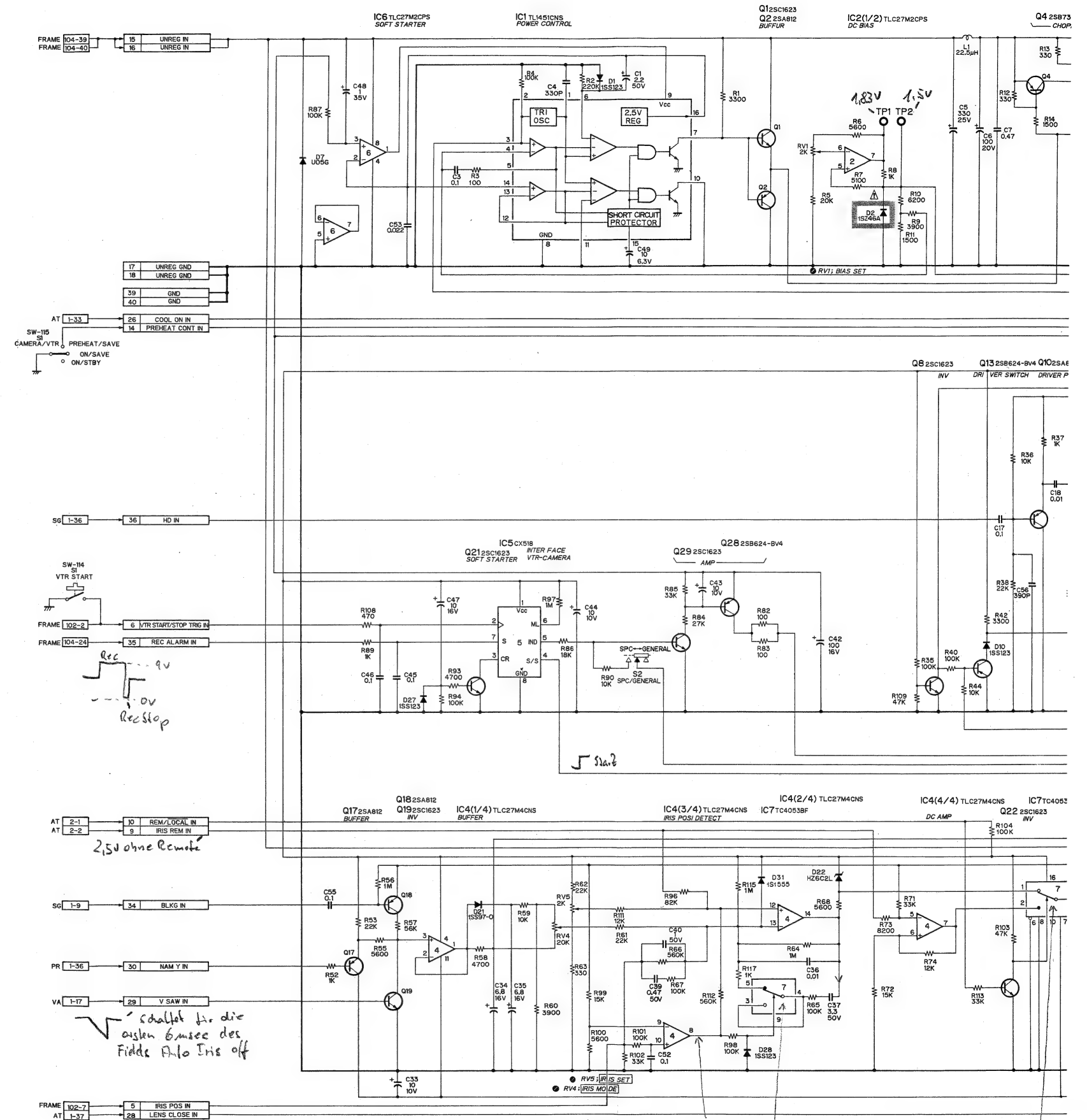


\*NOTE

REF. NO.	DESCRIPTION	EFFECTIVE SER. NO.
C77(N)	CHOSE 20P 33P	10001~ (J)
C103	220P ADD	10021~ (UC)
		10001~ (EK)

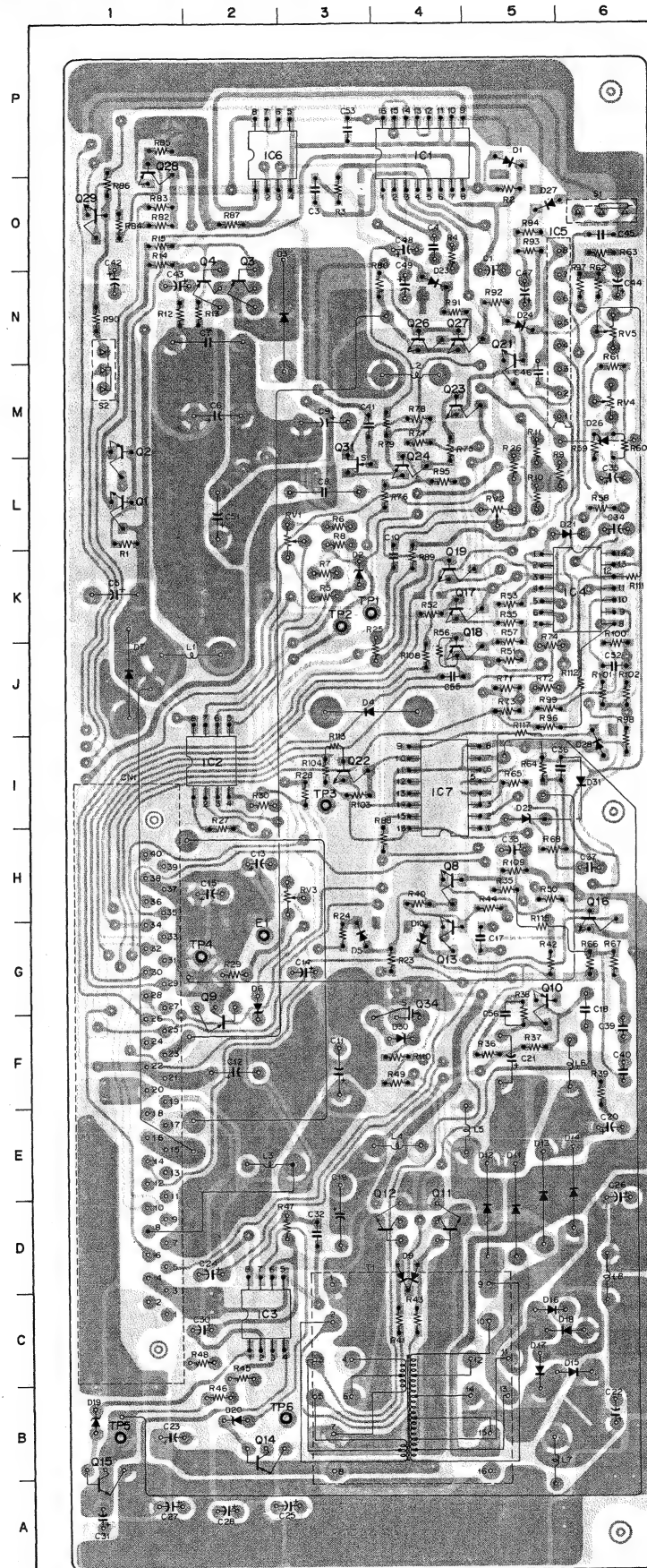
EN-41/41P BOARD  
 1-618-168-11,12  
 1-618-168-21,22  
 BVP-5 (J, UC) 10001~  
 BVP-5P (EK) 10001~

PS-129 BOARD





Serial No. 10001 ~ 10020 (J)  
Serial No. 10001 ~ 10020 (UC)  
Serial No. 10001 ~ 10010 (EK)



CN1	F-1
D1	P-5
D2	K-3
D3	N-3
D4	J-3
D5	G-3
D6	G-2
D7	J-1
D8	D-4
D10	G-4
D11	D-5
D12	D-5
D13	D-5
D14	E-6
D15	C-6
D16	C-5
D17	C-5
D18	C-6
D19	B-1
D20	B-2
D21	L-6
D22	I-5
D23	N-4
D24	N-5
D26	M-6
D27	O-6
D28	I-6
D30	F-4
D31	I-6
E1	G-2
IC1	P-4
IC2	I-2
IC3	C-2
IC4	K-6
IC5	N-6
IC6	P-2
IC7	I-4
Q1	L-1
Q2	L-1
Q3	N-2
Q4	N-2
Q8	H-4
Q9	G-2
Q10	G-5
Q11	D-4
Q12	D-4
Q13	G-4
Q14	B-2
Q15	B-1
Q16	G-6
Q17	K-5
Q18	J-5
Q19	K-4
Q21	M-5
Q22	I-3
Q23	M-5
Q24	L-4
Q28	N-4
Q27	N-5
Q28	P-1
Q29	O-1
Q31	L-3
Q34	F-4
RV1	L-3
RV2	L-5
RV3	H-3
RV4	M-6
RV5	N-6
S1	O-6
S2	M-1
T1	B-4
TP1	K-3
TP2	K-3
TP3	I-3
TP4	G-2
TP5	B-1
TP6	B-2

BVP-5 (J, UC)  
BVP-5P (EK)

6-33(a)

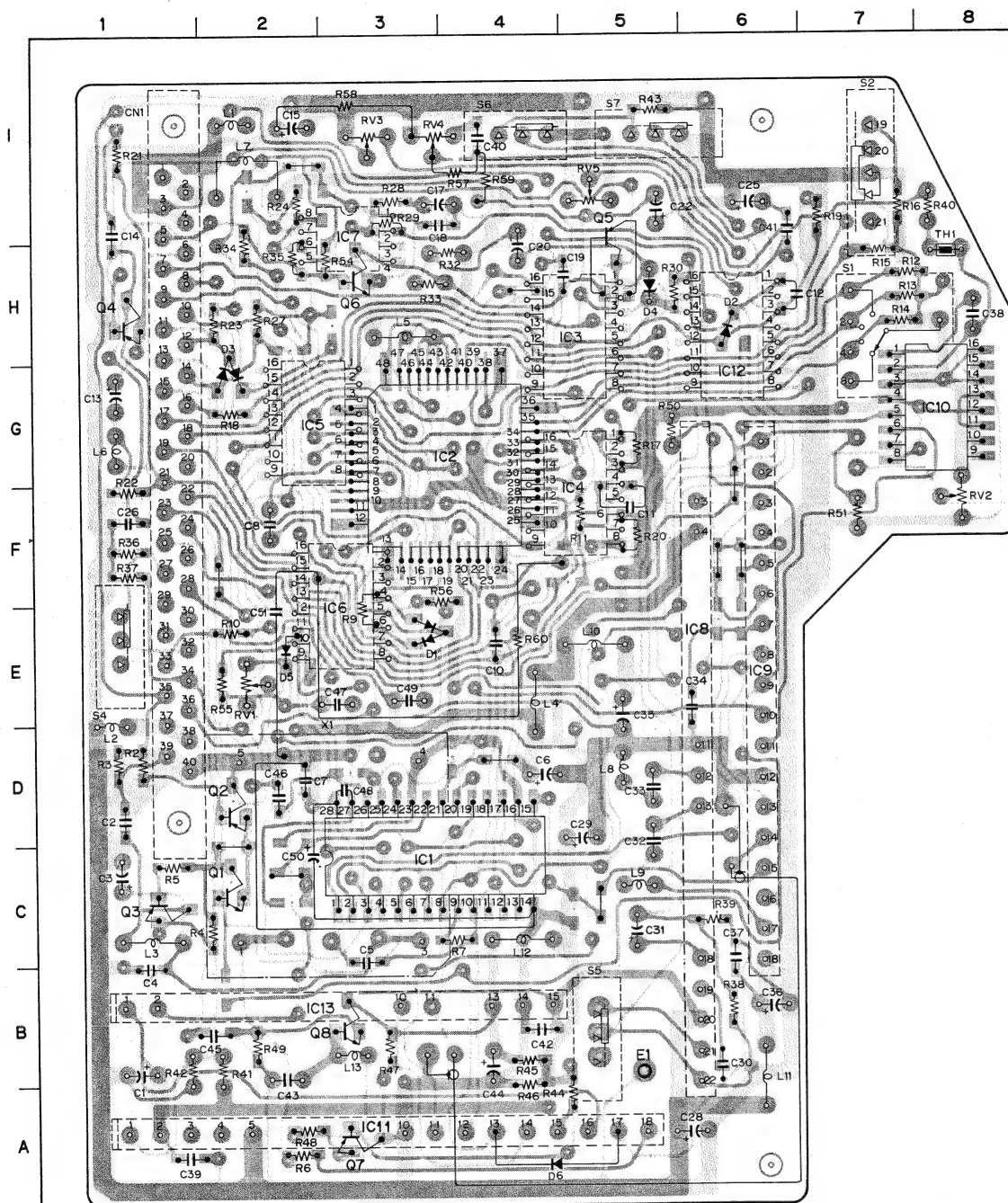
**PS-129 BOARD**  
— SOLDERING SIDE —  
1-618-169-11  
BVP-5 (J, UC) 10001-10020  
BVP-5P (EK) 10001-10010



**PS-129 BOARD**  
— SOLDERING SIDE —  
1-618-169-12  
BVP-5 (J,UC) 10021~  
BVP-5P(EK) 10011~

BVP-5 (J, UC)  
BVP-5P (EK)

## SG-117/117P BOARD



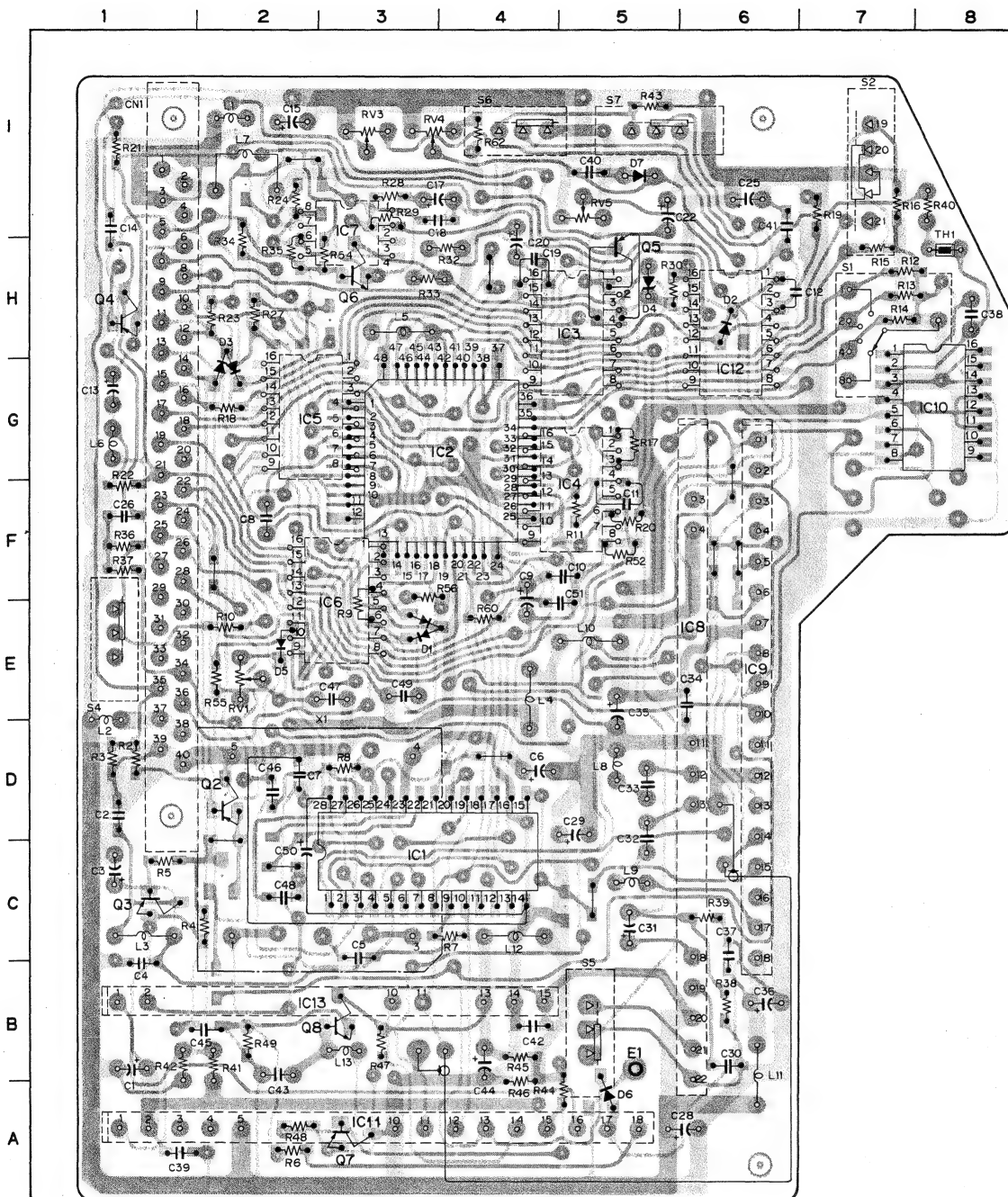
CN1	G-1
D1	E-3
D2	H-6
D3	G-2
D4	H-5
D5	E-2
E1	B-5
IC1	C-3
IC2	G-4
IC3	H-5
IC4	F-5
IC5	G-2
IC6	F-3
IC7	I-3
IC8	D-6
IC9	E-6
IC10	G-8
IC11	A-3
IC12	H-6
IC13	B-3
Q1	C-2
Q2	D-2
Q3	C-1
Q4	H-1
Q5	H-5
Q6	H-3
Q7	A-3
Q8	B-3
RV1	E-2
RV2	F-8
RV3	I-3
RV4	I-3
RV5	I-5
S1	H-7
S2	I-7
S4	E-1
S5	B-5
S6	I-4
S7	I-5
TH1	H-8
X1	C-3

### SG-117P BOARD

-SOLDERING SIDE-

I-618-170-13  
BVP-5P (EK) 10011~10030

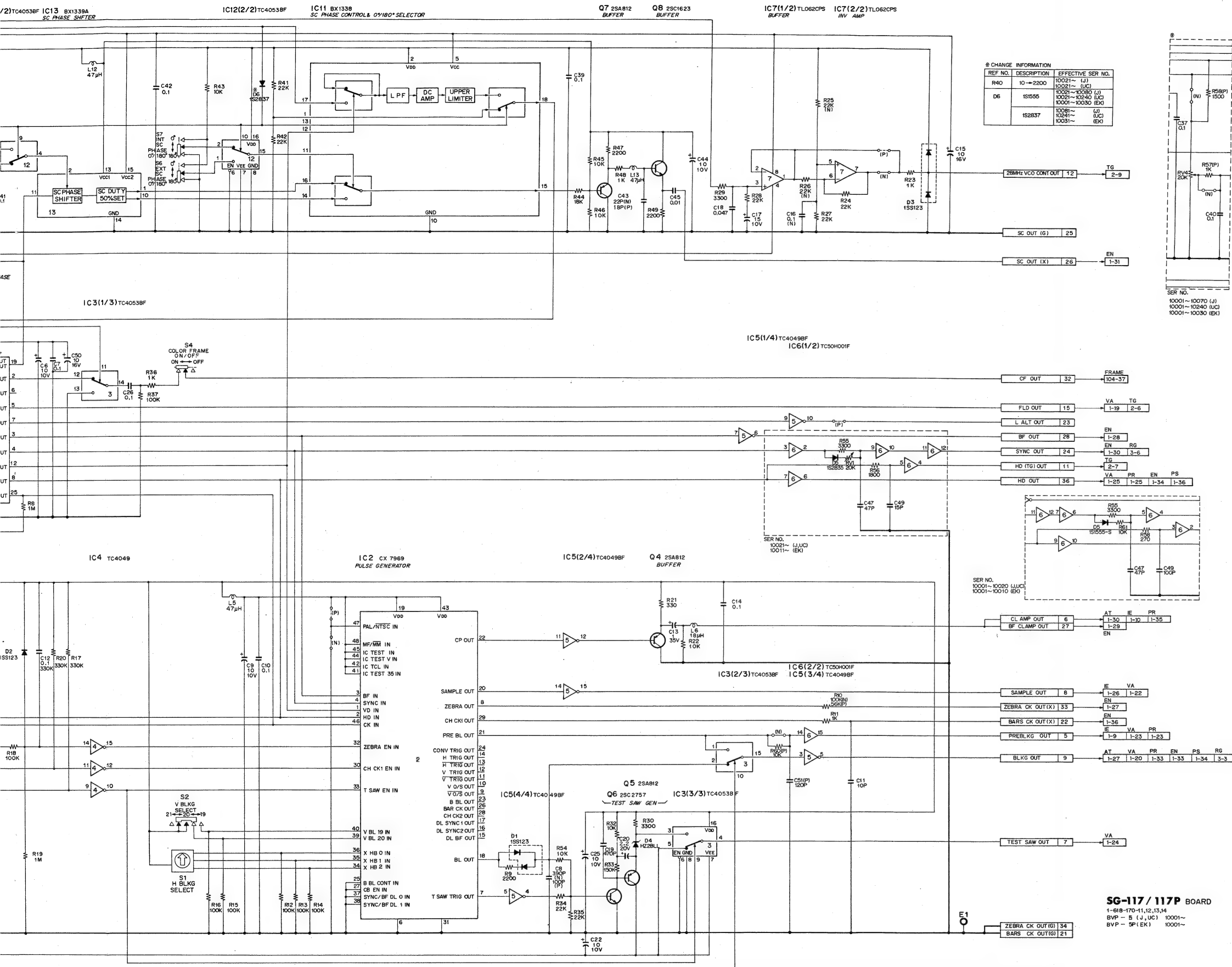
## SG-117/117P BOARD



CN1	G-1
D1	E-3
D2	H-6
D3	G-2
D4	H-5
D5	E-2
D6	A-5
D7	I-5
E1	B-5
IC1	C-3
IC2	G-4
IC3	H-5
IC4	F-5
IC5	G-2
IC6	F-3
IC7	I-3
IC8	D-6
IC9	E-6
IC10	G-8
IC11	A-3
IC12	H-6
IC13	B-3
Q1	C-2
Q2	D-2
Q3	C-1
Q4	H-1
Q5	H-5
Q6	H-3
Q7	A-3
Q8	B-3
RV1	E-2
RV3	I-3
RV4	I-3
RV5	I-5
S1	H-7
S2	I-7
S4	E-1
S5	B-5
S6	I-4
S7	I-5
TH1	H-8
X1	C-3

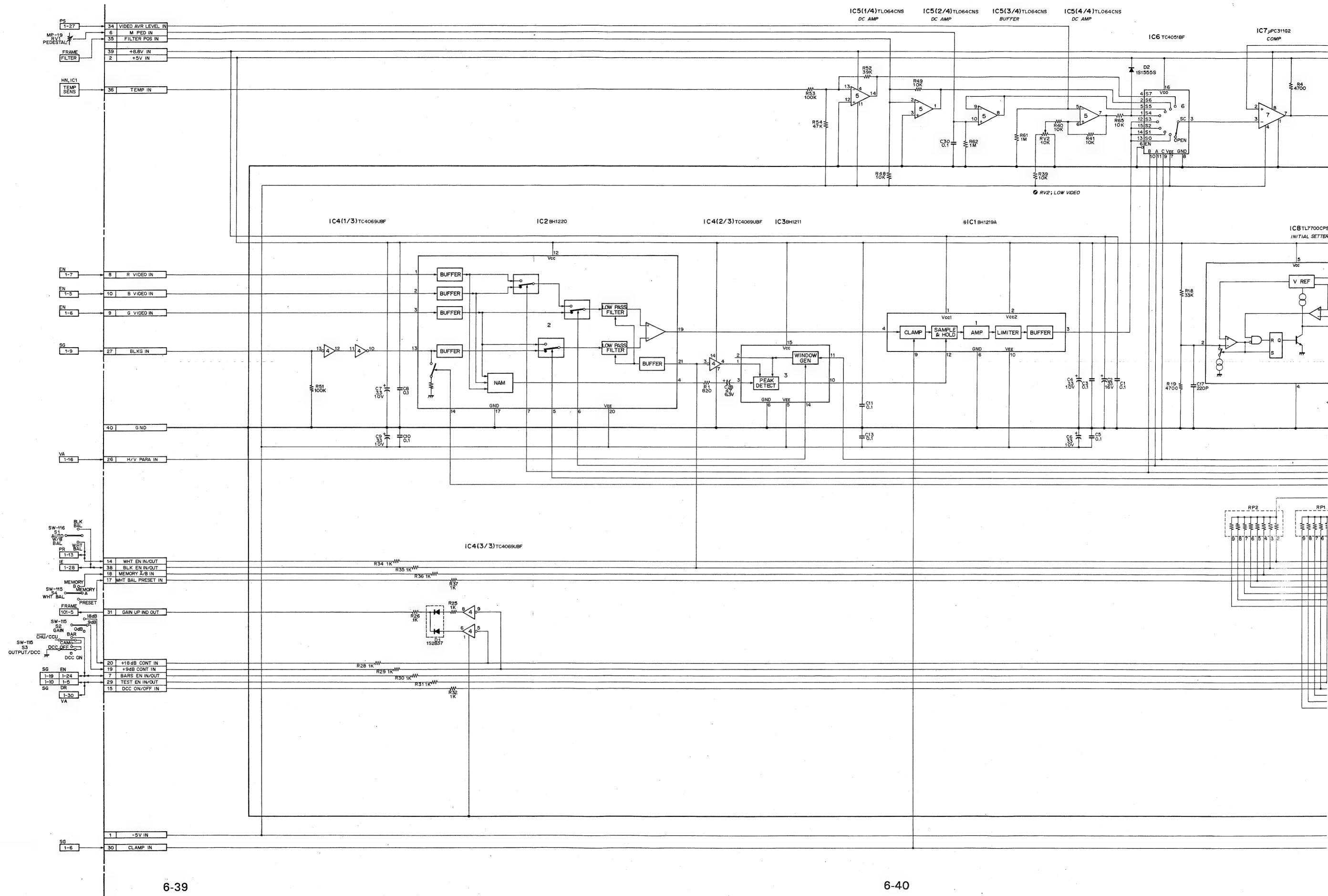
SG-117P BOARD  
-SOLDERING SIDE-1-618-170-14  
BVP-5P (EK) 10031~

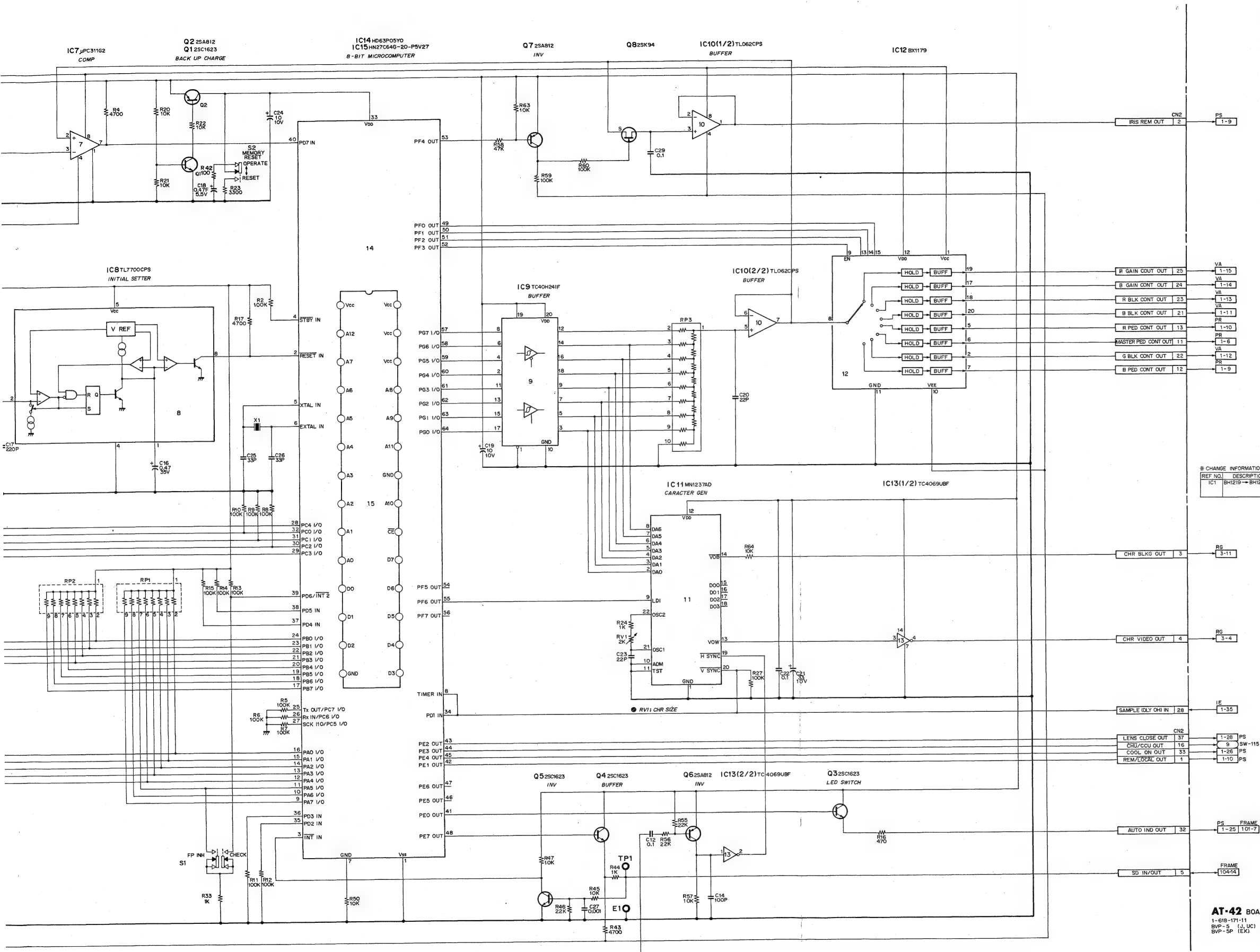
**SG-117/117P**





AT-42 BOARD

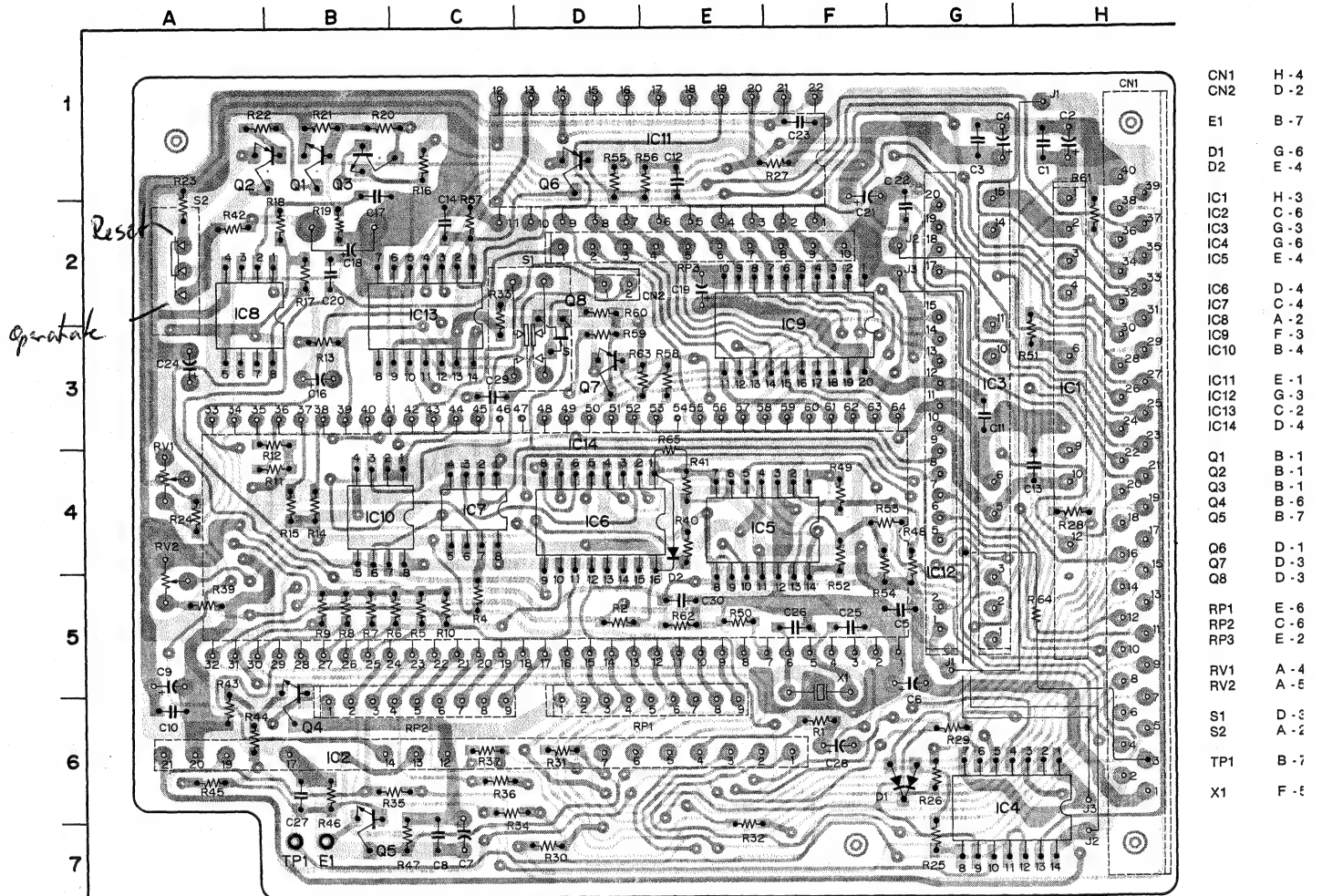




* CHANGE INFORMATION		
REF. NO.	DESCRIPTION	EFFECTIVE SER. NO.
IC1	BH1219 → BH1219A	10051 ~ (J)
IC2	BH1219 → BH1219A	10141 ~ (J)
IC3	BH1219 → BH1219A	10011 ~ (E)

**AT-42 BOARD**  
1-618-171-11  
BVP-5 (J, UC) 10001~  
BVP-5P (EK) 10001~

AT-42 BOARD



**AT-42 BOARD**  
-SOLDERING SIDE-

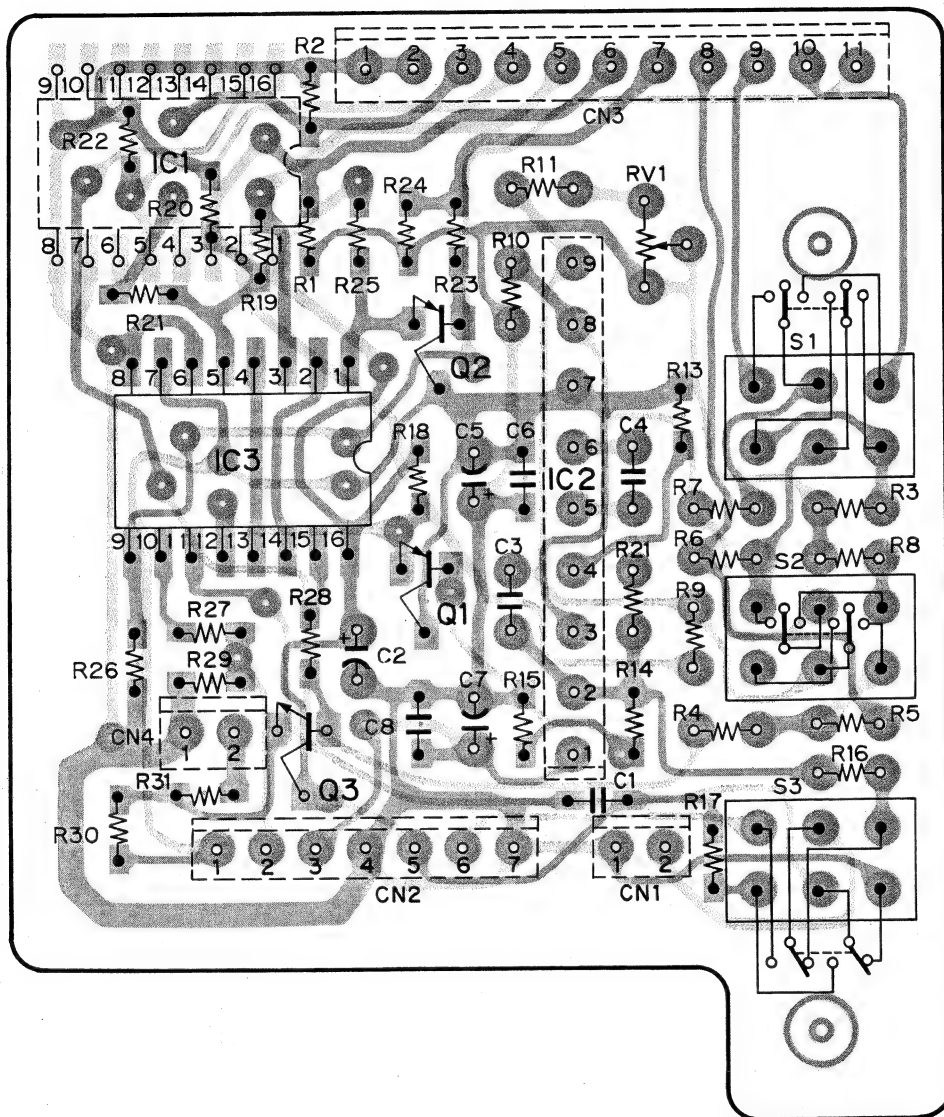
1-618-171-11  
BVP-5 (J, UC) 10001 ~  
BVP-5P (EK) 10001 ~

BVP-5 (J, UC)  
BVP-5P (EK)



Serial No. 10021 ~	(J)
Serial No. 10021 ~	(UC)
Serial No. 10011 ~	(EK)

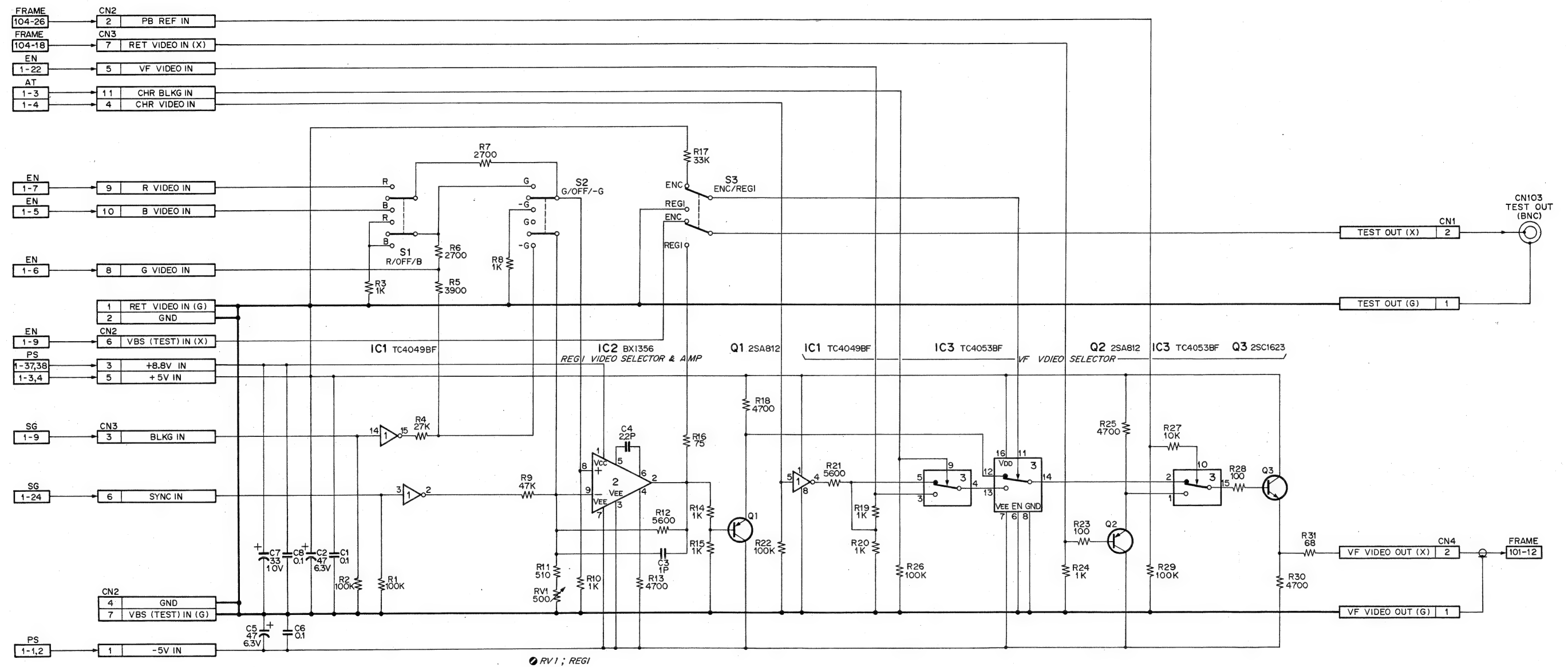
RG-14/14P BOARD



**RG-14** BOARD  
-SOLDERING SIDE-

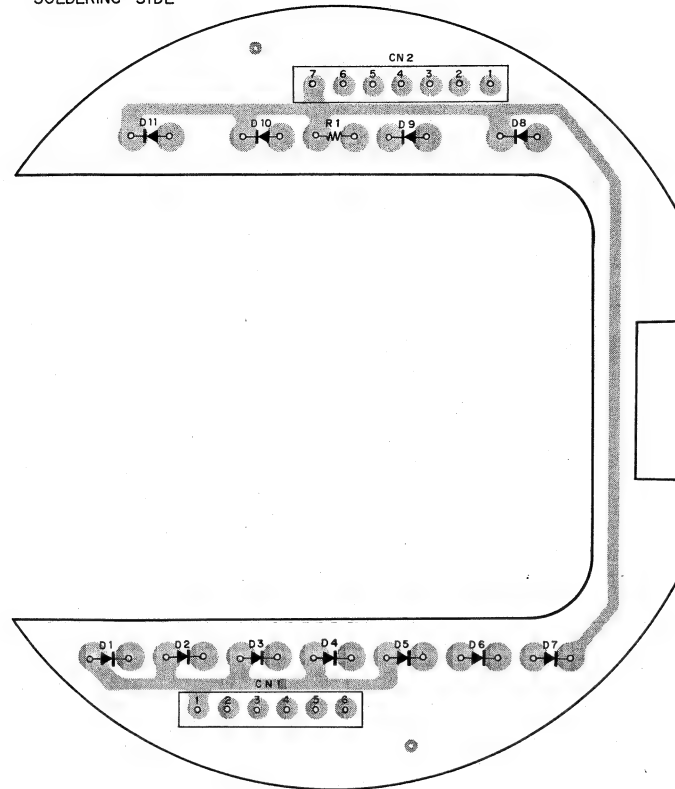
1-618-174-12  
BVP-5 (J,UC) 10021 ~  
BVP-5P (EK) 10011 ~

RG-14/14P BOARD



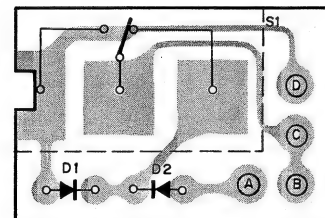
**CN-127 BOARD**  
**LP-28 BOARD**  
**SW-80 BOARD**  
**VF-26 BOARD**

**LP-28 BOARD**  
-SOLDERING SIDE-

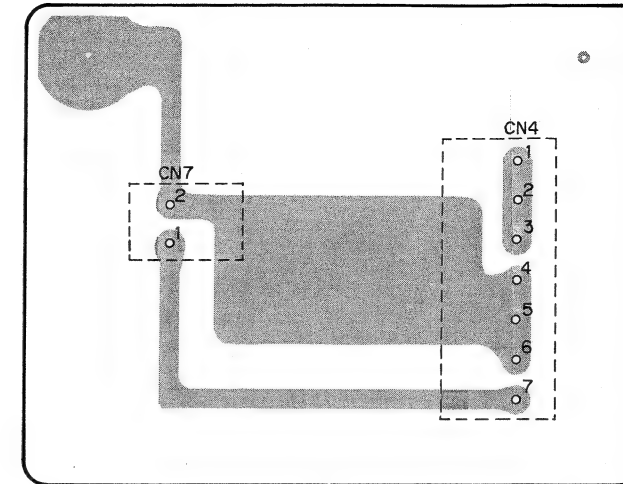


1-612-777-11  
BVP-5(JUC) 10001 ~  
BVP-5P(EK) 10001 ~

**SW-80 BOARD**  
-SOLDERING SIDE-

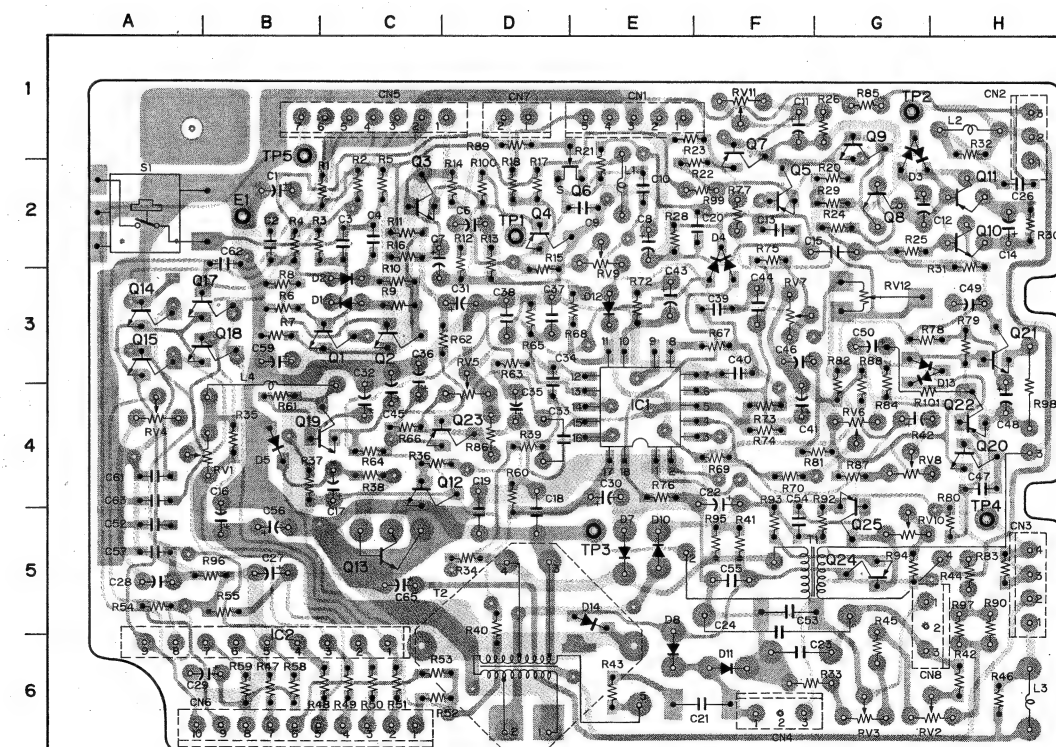


1-612-778-11  
BVP-5(JUC) 10001 ~  
BVP-5P(EK) 10001 ~



**CN-127 BOARD**  
-SOLDERING SIDE-

1-618-182-11  
BVP-5 (JUC) 10001 ~  
BVP-5P (EK) 10001 ~



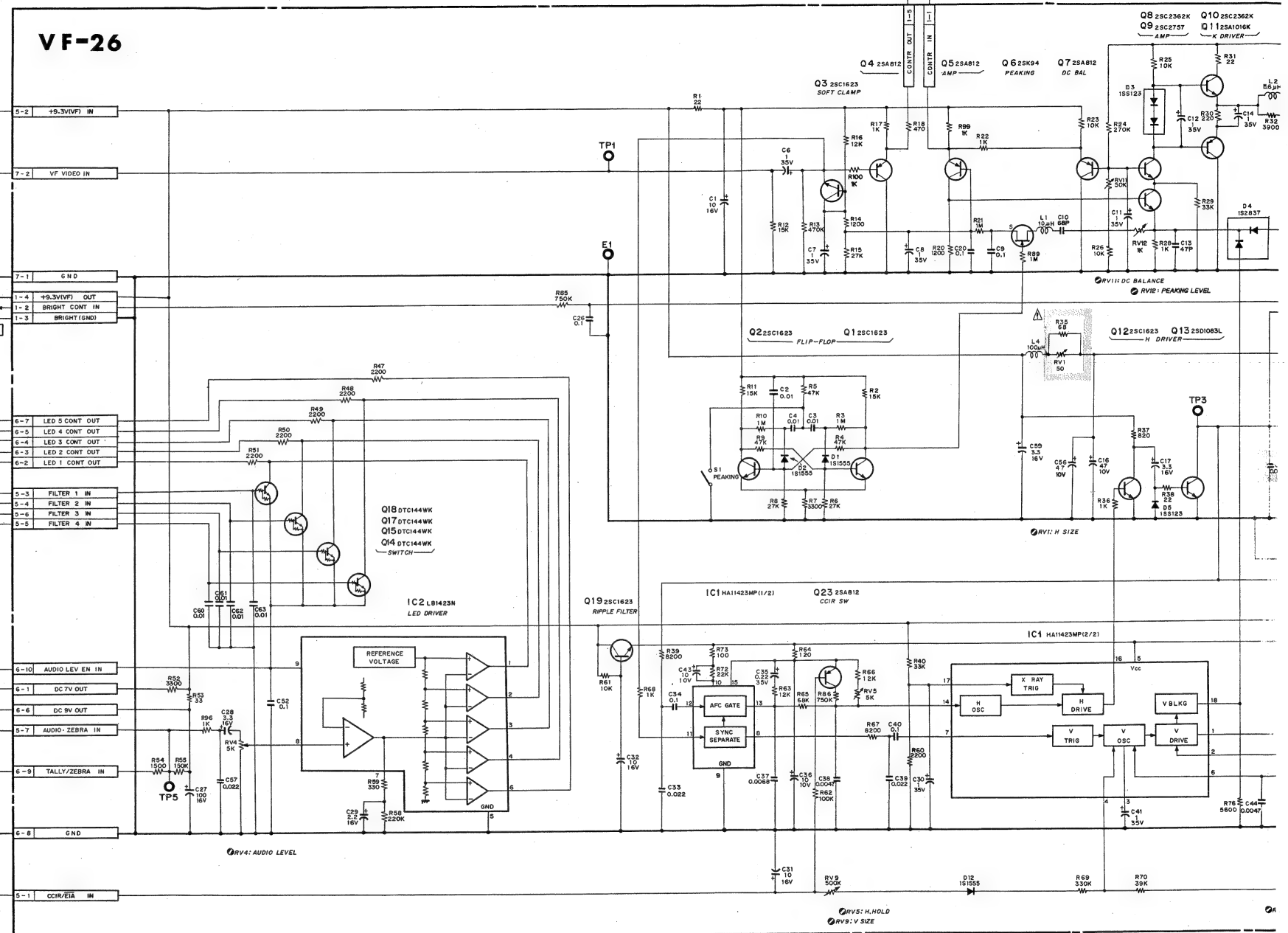
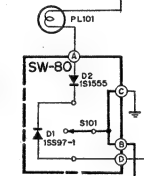
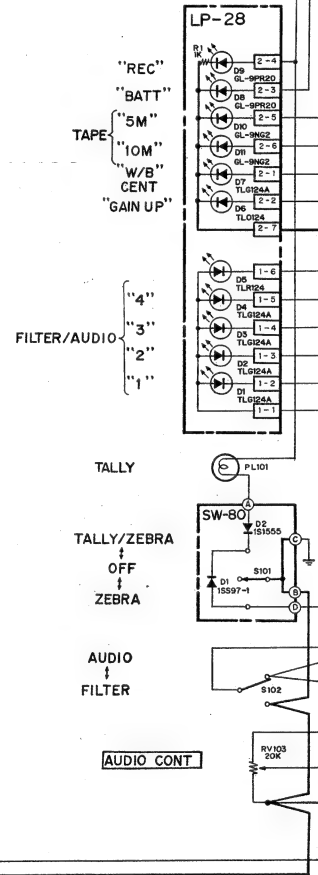
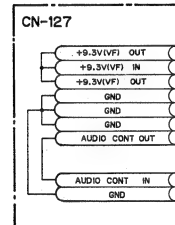
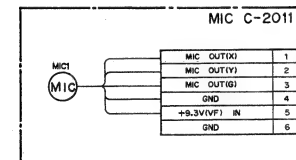
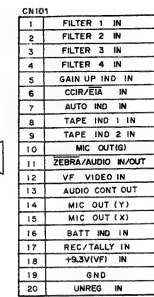
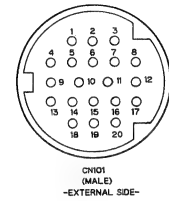
**VF-26 BOARD**  
-SOLDERING SIDE-

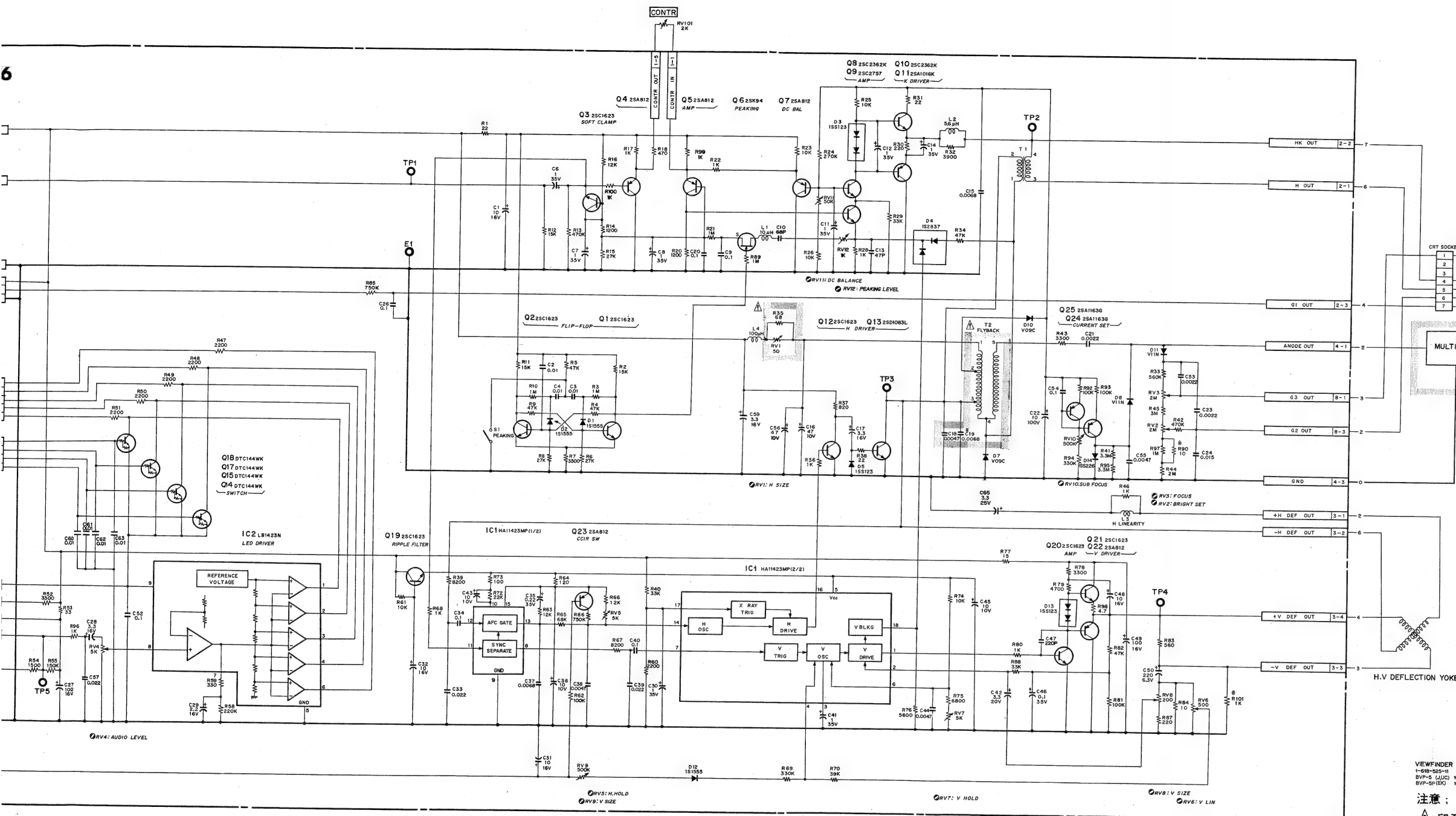
1-618-525-11  
BVP-5 (JUC) 10001 ~  
BVP-5P (EK) 10001 ~

CN1	E-1	Q11	H-2
CN2	H-1	Q12	C-4
CN3	H-5	Q13	C-5
CN4	F-6	Q14	A-3
CN5	C-1	Q15	A-3
CN6	B-6	Q17	B-3
CN7	D-1	Q18	B-3
CN8	G-5	Q19	B-4
		Q20	H-4
D1	C-3	Q21	H-3
D2	C-3		
D3	G-2	Q22	H-4
D4	F-3	Q23	D-4
D5	B-4	Q24	G-5
		Q25	G-5
D7	E-5	RV1	A-4
D8	E-6	RV2	H-6
D10	E-5	RV3	G-6
D11	F-6	RV4	A-4
D12	E-3	RV5	D-4
D13	G-3	RV6	G-4
D14	E-5	RV7	F-3
E1	B-2	RV8	G-4
		RV9	E-2
IC1	E-4	RV10	G-5
IC2	B-6		
		RV11	F-1
Q1	C-3	RV12	G-3
Q2	C-3		
Q3	C-2	S1	A-2
Q4	D-2		
Q5	F-2	T1	G-5
		T2	D-6
Q6	D-2		
Q7	F-1	TP1	D-2
Q8	G-2	TP2	G-1
Q9	G-1	TP3	E-5
Q10	H-2	TP4	H-5
		TP5	B-2

BVP-5 (J, UC)  
BVP-5P (EK)

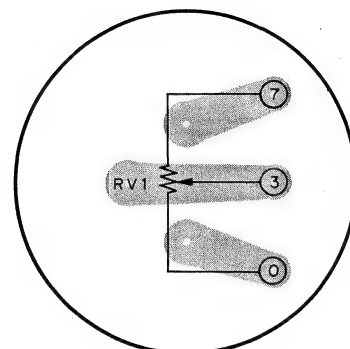
**VIEWFINDER**  
**CN-127 BOARD**  
**LP-28 BOARD**  
**SW-80 BOARD**  
**VF-26 BOARD**



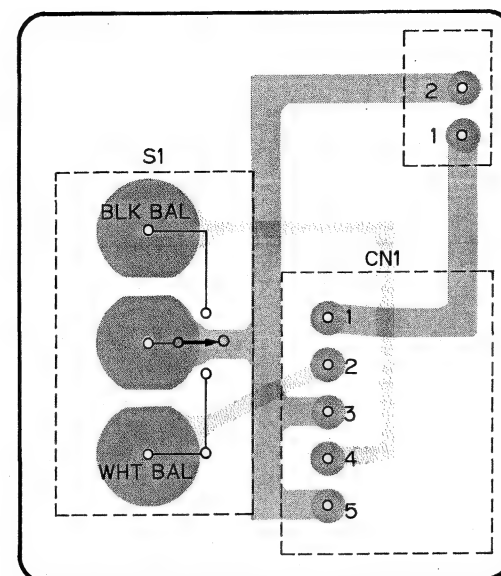




Serial No. 10001 ~ 10020 (J)
Serial No. 10001 ~ 10020 (UC)
Serial No. 10001 ~ 10010 (EK)

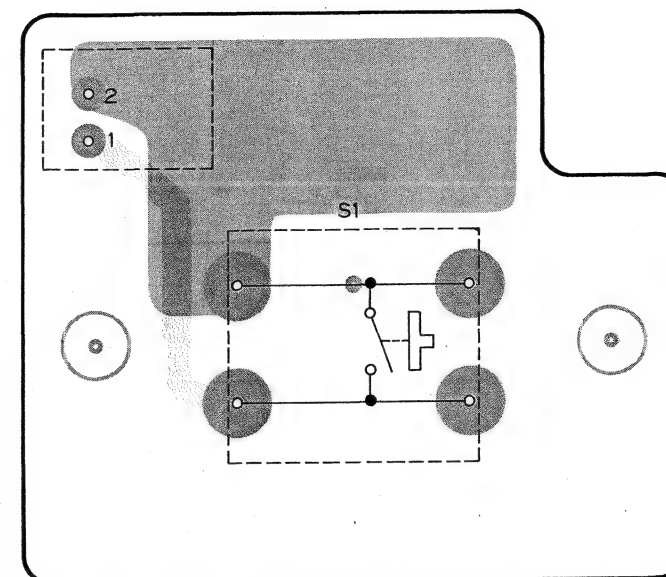


MP-19 BOARD  
1-608-021-11  
BVP-5(J,UC) 10001 ~  
BVP-5P(EK) 10001 ~



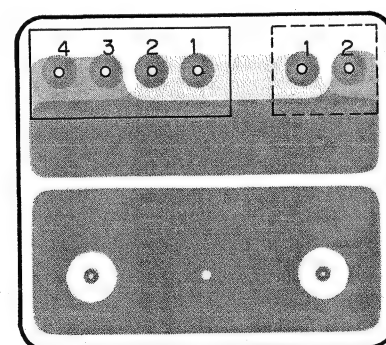
**SW-116** BOARD  
-SOLDERING SIDE-

1-618-177-11  
BVP-5 (J,UC) 10001 ~  
BVP-5P (EK) 10001 ~



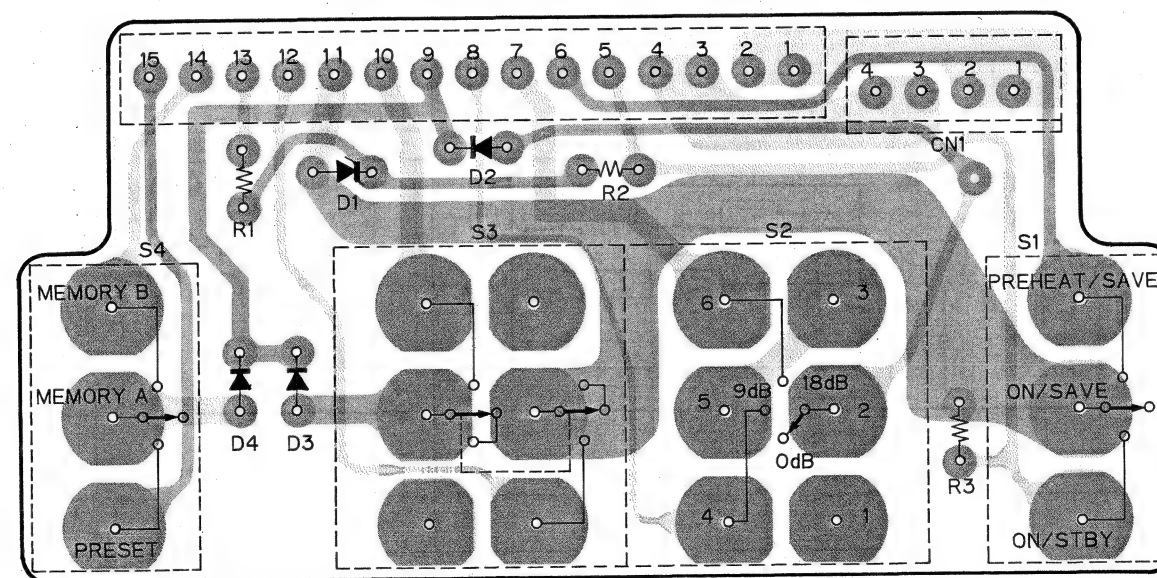
**SW-114 BOARD**  
**-SOLDERING SIDE-**

1-618-176-11  
BVP-5 (J,UC) 10001 ~  
BVP-5P(EK) 10001 ~



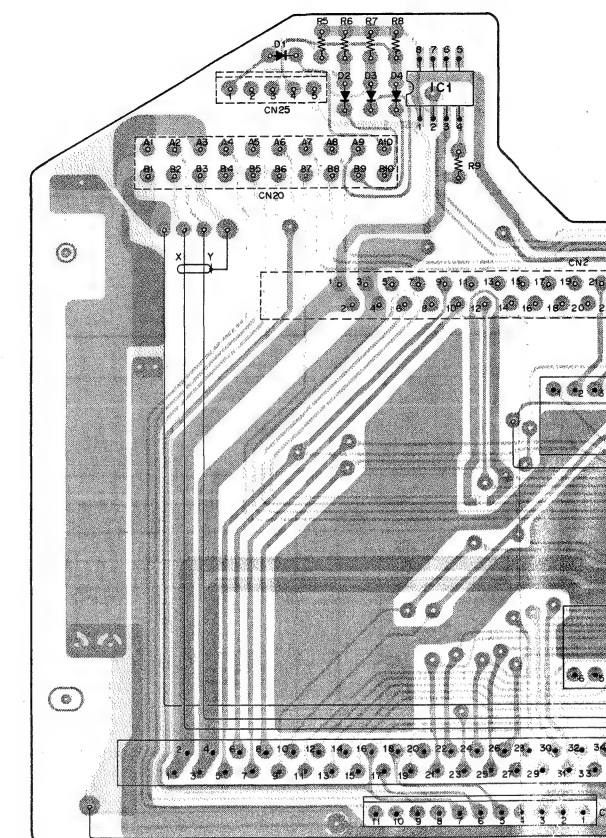
**CN-119** BOARD  
-SOLDERING SIDE-

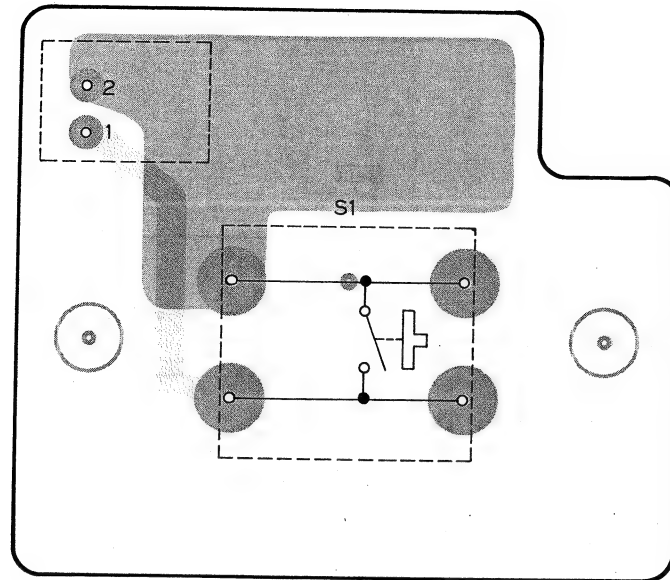
1-618-264-11,12  
BVP-5 (J,UC) 10001 ~  
BVP-5P (EK) 10001 ~



**SW-115** BOARD  
-SOLDERING SIDE-

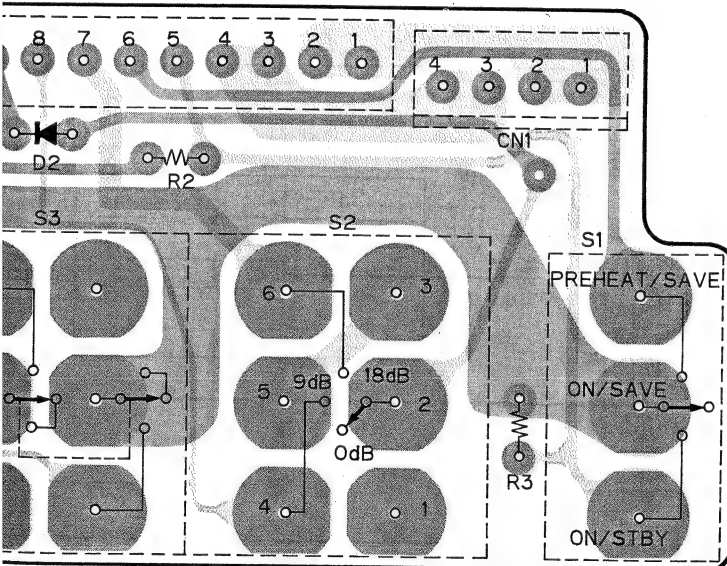
1-618-175-11  
BVP-5 (J,UC) 10001 ~10020  
BVP-5P(EK) 10001 ~10010





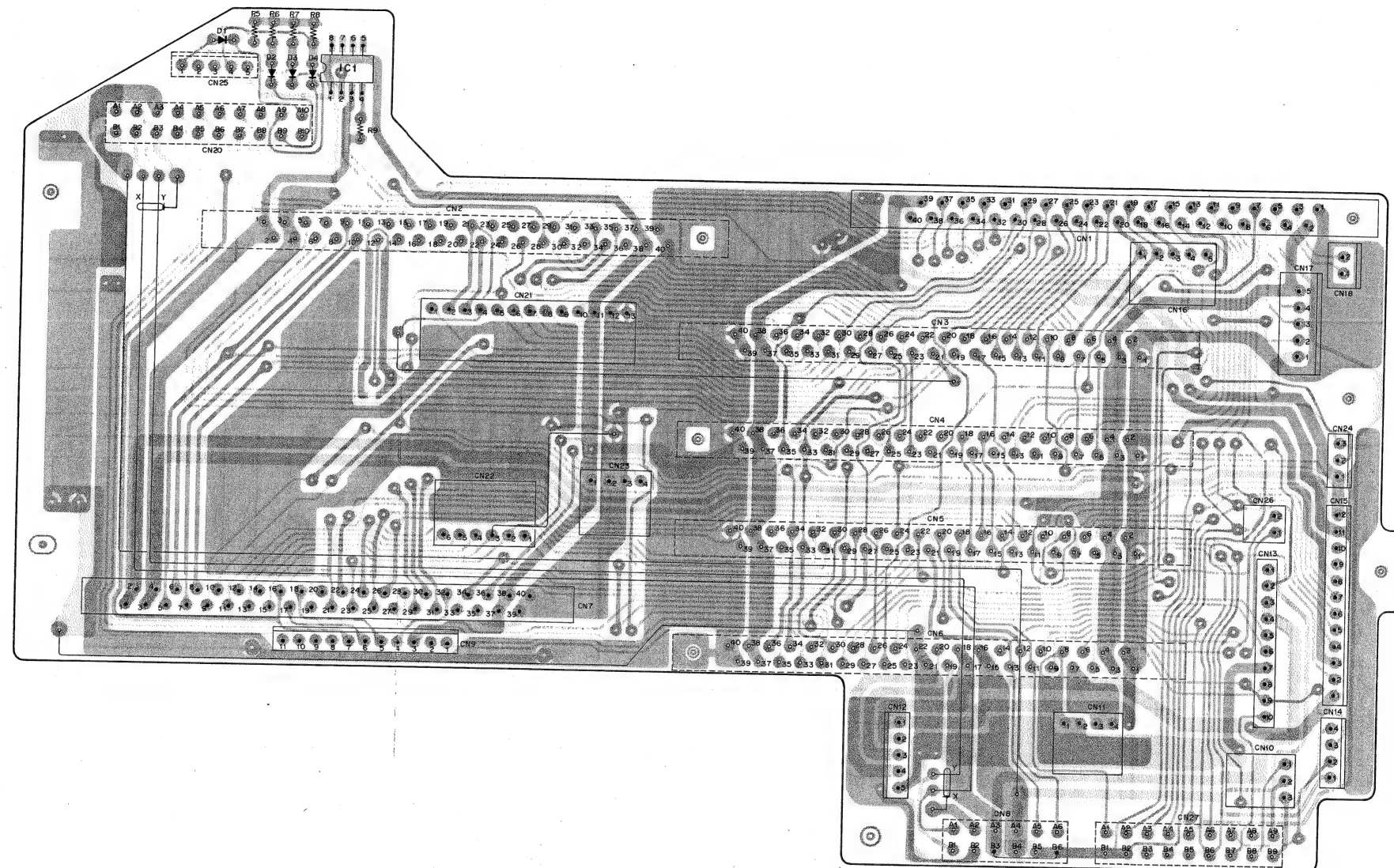
**SW-114 BOARD**  
**-SOLDERING SIDE-**

1-618-176-11  
BVP-5 (J,UC) 10001 ~  
BVP-5P (EK) 10001 ~



**SW-115** BOARD  
-SOLDERING SIDE-

1-618-175-11  
BVP-5 (J,UC) 10001 ~ 10020  
BVP-5P (EK) 10001 ~ 10010

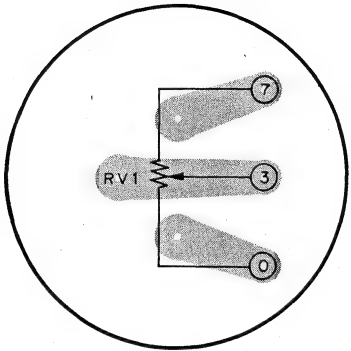


**HN-46** BOARD  
-SOLDERING SIDE-

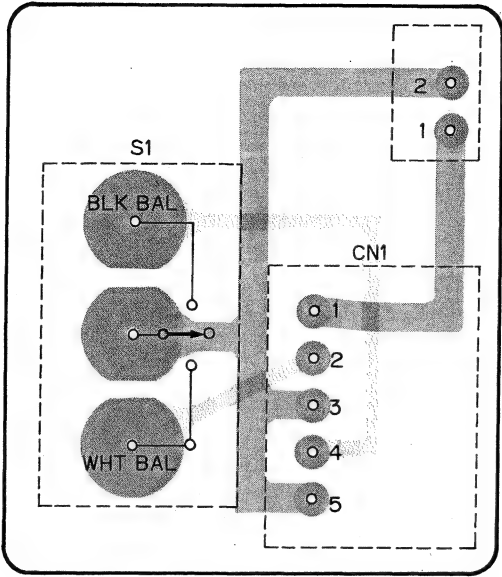
1-618-172-11  
BVP-5 (J,UC) 10001~10020  
BVP-5P (EK) 10001~10010

CN-119 BOARD  
HN-46 BOARD  
MP-19 BOARD  
SW-114 BOARD  
SW-115 BOARD  
SW-116 BOARD

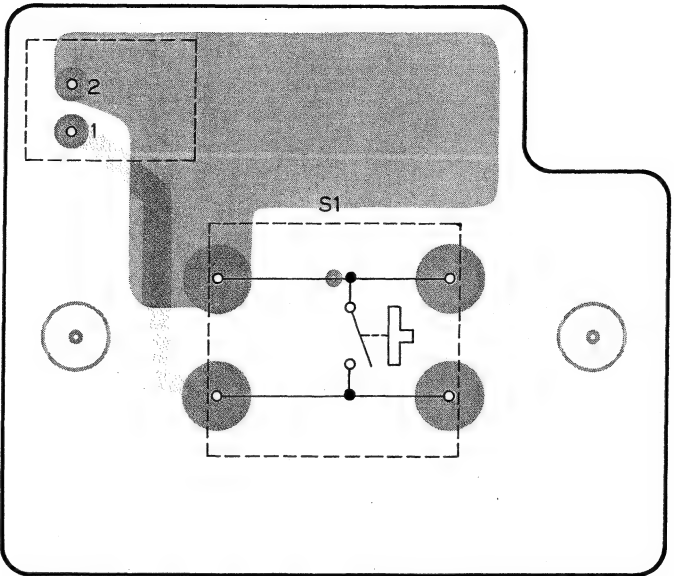
Serial No. 10021 ~ (J)  
Serial No. 10021 ~ (UC)  
Serial No. 10011 ~ (EK)



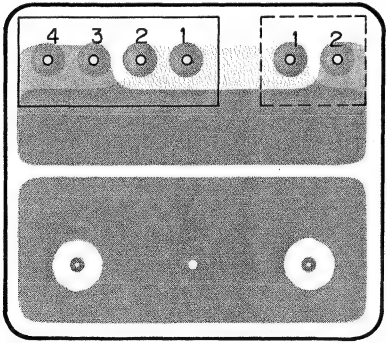
MP-19 BOARD  
1-608-021-11  
BVP-5(JUC) 10001 ~  
BVP-5P(EK) 10001 ~



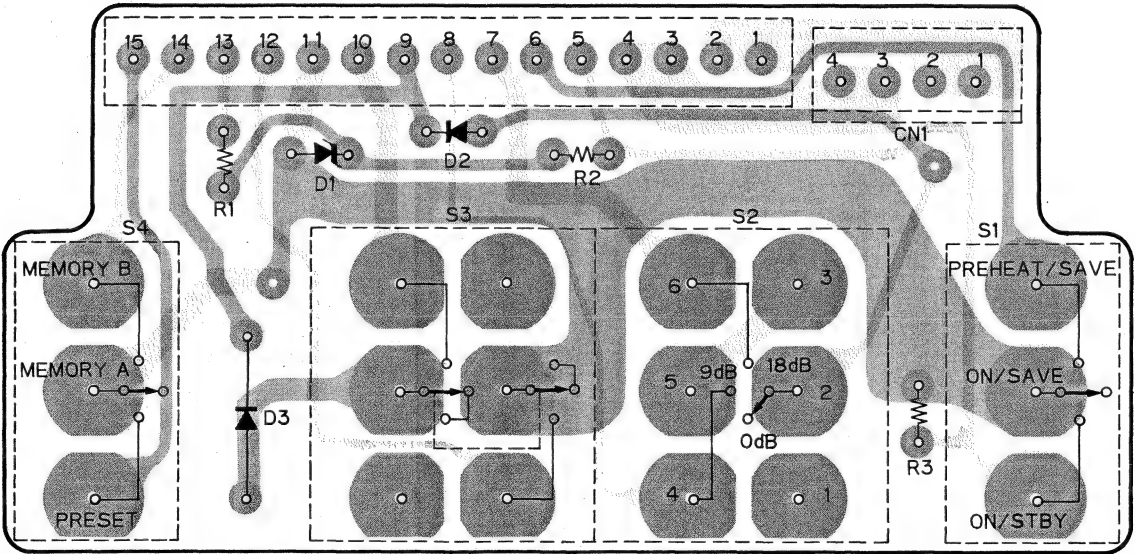
SW-116 BOARD  
-SOLDERING SIDE-  
1-618-177-11  
BVP-5 (JUC) 10001 ~  
BVP-5P (EK) 10001 ~



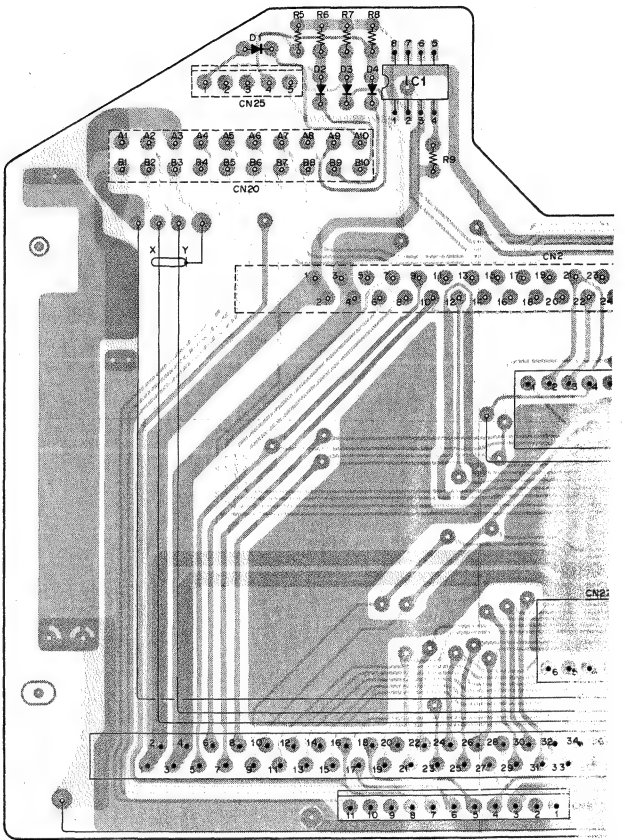
SW-114 BOARD  
-SOLDERING SIDE-  
1-618-176-11  
BVP-5 (JUC) 10001 ~  
BVP-5P (EK) 10001 ~



CN-119 BOARD  
-SOLDERING SIDE-  
1-618-264-11,12  
BVP-5 (JUC) 10001 ~  
BVP-5P (EK) 10001 ~



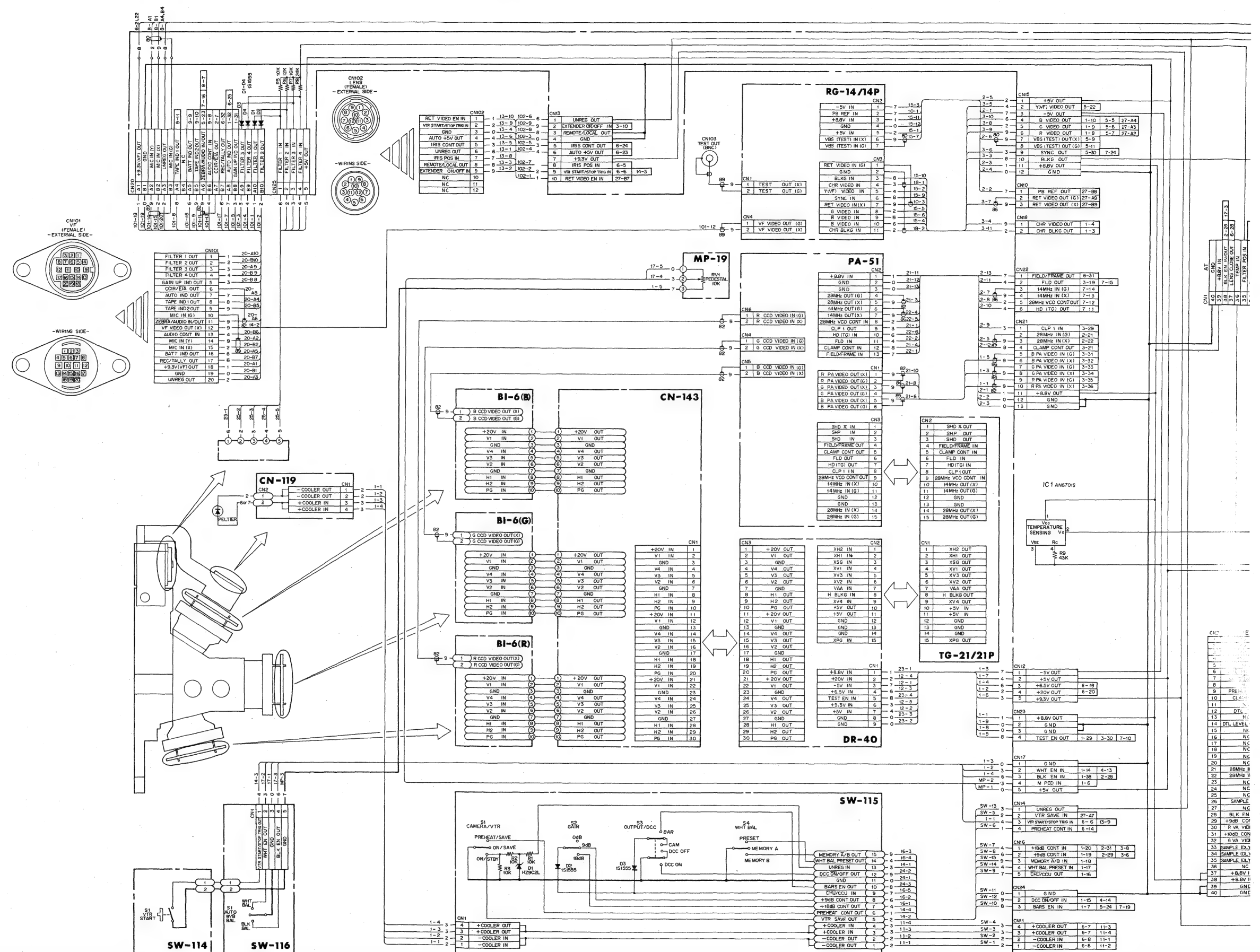
SW-115 BOARD  
-SOLDERING SIDE-  
1-618-175-12  
BVP-5 (JUC) 10021 ~  
BVP-5P (EK) 10011 ~

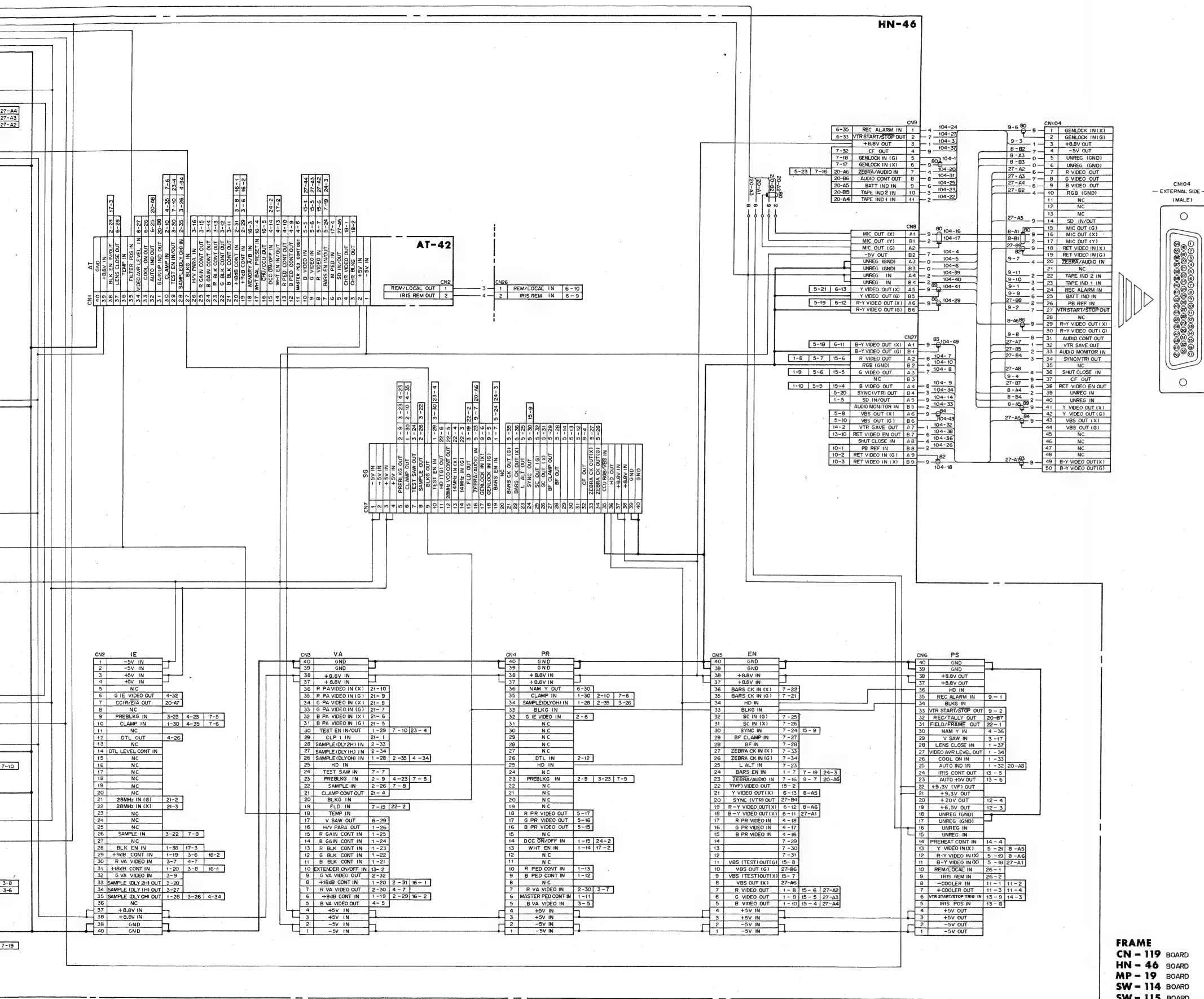






**CN-119** BOARD  
**HN-46** BOARD  
**MP-19** BOARD  
**SW-114** BOARD  
**SW-115** BOARD  
**SW-116** BOARD





FRAME  
CN - 119 BOARD  
HN - 46 BOARD  
MP - 19 BOARD  
SW - 114 BOARD  
SW - 115 BOARD  
SW - 116 BOARD  
BVP-5 (J, UC)  
BVP-5P (EK)

## SECTION 7 SEMICONDUCTORS

The circuit diagram of IC is obtained from the IC data book published by the manufacturer.

TYPE	PAGE	TYPE	PAGE	TYPE	PAGE
11DQ04.....	7-2	BH1214.....	7-3	LB1423N.....	7-16
11E2.....	7-2	BH1215.....	7-3	MB7052PF.....	7-16
1S1555.....	7-2	BH1216.....	7-4	MMH0026CP1.....	7-16
1S1555-S.....	7-2	BH1217.....	7-4	MN1237AD.....	7-16
1S2835.....	7-2	BH1218.....	7-4		
1S2837.....	7-2			NJM1496M.....	7-17
1SS123.....	7-2	BH1219.....	7-4	NJM2903M.....	7-17
		BH1219A.....	7-4		
1SS226.....	7-2	BH1220.....	7-4	TA78L012AP.....	7-17
1SS97.....	7-2	BH1221.....	7-4	TC4011BF.....	7-17
1SS97-1.....	7-2	BX1179.....	7-5	TC4049BF.....	7-17
1SZ46A.....	7-2			TC4050BF.....	7-17
		BX1337.....	7-5	TC4051BF.....	7-17
2SA1016K.....	7-2	BX1338.....	7-5		
2SA1163.....	7-2	BX1339.....	7-5	TC4053BF.....	7-17
2SA1226.....	7-2	BX1340.....	7-5	TC4069UBF.....	7-17
2SA812.....	7-2	BX1356.....	7-6	TC40H241F.....	7-18
2SB624.....	7-2			TC504013BF.....	7-18
		CX20011.....	7-6	TC74HC08F.....	7-18
2SC1623.....	7-2	CX20180.....	7-6	TC74HC14F.....	7-18
2SC2362K.....	7-2	CX22017.....	7-6		
2SC2757.....	7-2	CX23047B.....	7-7	TC74HC4066F.....	7-18
2SC641K.....	7-2	CX518.....	7-10	TC74HC4538F.....	7-18
2SC756.....	7-2				
		CX7930A.....	7-10	TL062CPS.....	7-18
2SD1083L.....	7-2	CX7968A.....	7-12	TL064CNS.....	7-18
2SD596.....	7-2	CX7969.....	7-13	TL1451CNS.....	7-19
2SD773.....	7-2			TL7700CPS.....	7-19
2SK591.....	7-2	DTC114WK.....	7-2	TLC27M2CPS.....	7-19
2SK94.....	7-2				
		ERA81-004.....	7-2	TLC27M4CNS.....	7-19
3SK163.....	7-2	ERB81-004.....	7-2	TLG124A.....	7-2
AN6701S.....	7-3			TLO124.....	7-2
		GL9NG2.....	7-2	TLR124.....	7-2
BH1210.....	7-3	GL9PR20.....	7-2		
BH1211.....	7-3			U05G.....	7-2
BH1212.....	7-3	HA11423MP.....	7-14	uPC311G2.....	7-19
BH1212A.....	7-3	HD63P05YO.....	7-14		
BH1213.....	7-3	HN27C64G-20.....	7-15	V09C.....	7-2
		HZ18-3L.....	7-2	V31M.....	7-2
		HZ2BLL.....	7-2		
		HZ4ALL.....	7-2		
		HZ5CLL.....	7-2		
		HZ6C2L.....	7-2		
		HZ7A2L.....	7-2		
		HZ9C2L.....	7-2		

< Di >

11D004  
1SS97  
1SS97-1  
ERB81-004  
ERB81-004

11E2  
1S1555  
1S1555S

TOP VIEW (SCALE 4/1)

1S2835

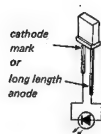
TOP VIEW (SCALE 4/1)

1S2837

TOP VIEW (SCALE 4/1)

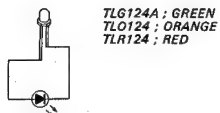
1SS123  
1SS226

63-8  
1SZ46A



GL9NG2 ; YELLOWISH GREEN  
GL9PR20 ; RED

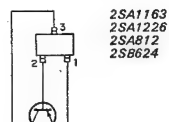
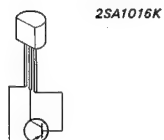
HZ ? 7L  
HZ ? 7LL



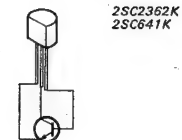
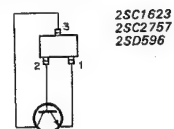
U05G  
V09C  
V31M

< Tr >

TOP VIEW (SCALE 4/1)

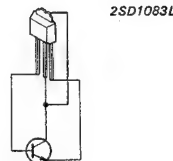


TOP VIEW (SCALE 4/1)



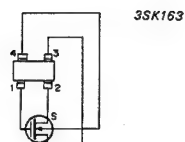
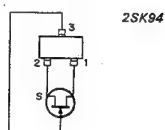
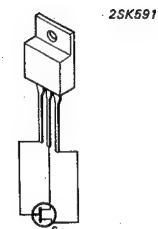
BOTTOM VIEW

2SC756

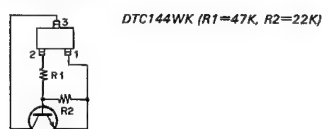


2SD773

TOP VIEW (SCALE 4/1)

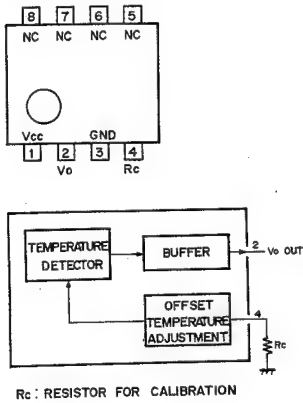


TOP VIEW (SCALE 4/1)

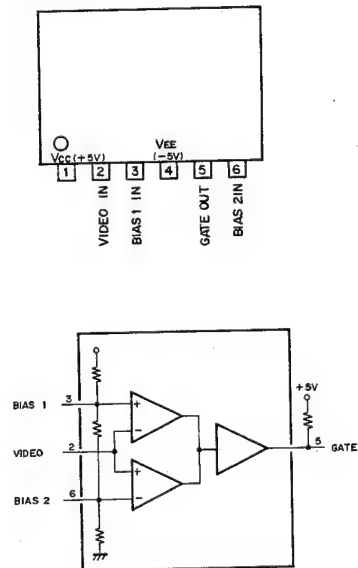


BVP-5 (J, UC)  
BVP-5P (EK)

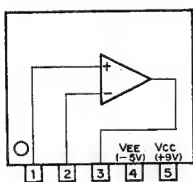
AN6701S (MATSUSHITA) FLAT PACKAGE  
TEMPERATURE SENSING  
— TOP VIEW —



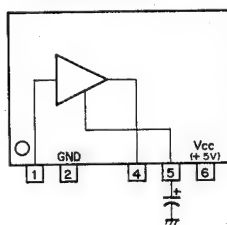
BH1213 (SONY)  
VIDEO LEVEL DETECTOR  
— PRINTED SIDE VIEW —



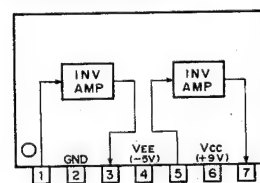
BH1210 (SONY)  
VIDEO AMPLIFIER  
— PRINTED SIDE VIEW —



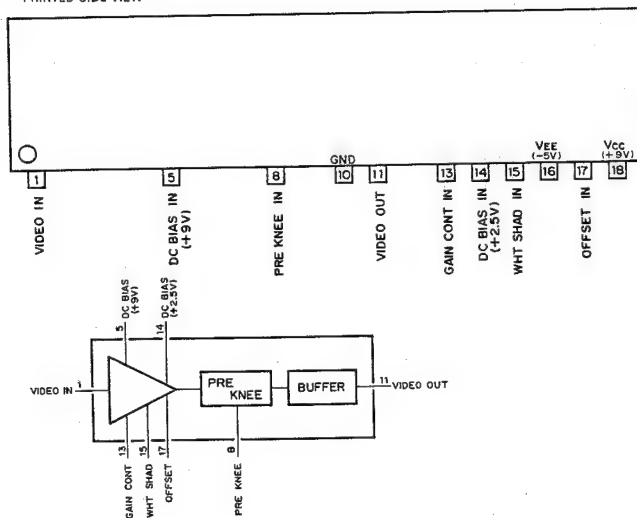
BH1211 (SONY)  
VIDEO DRIVER  
— PRINTED SIDE VIEW —



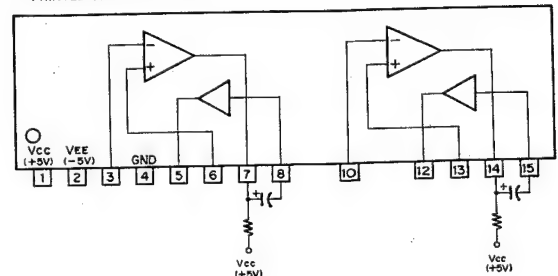
BH1214 (SONY)  
DUAL VIDEO INV. AMPLIFIER  
— PRINTED SIDE VIEW —



BH1212 (SONY)  
BH1212A (SONY)  
GAIN CONT AMPLIFIER  
— PRINTED SIDE VIEW —

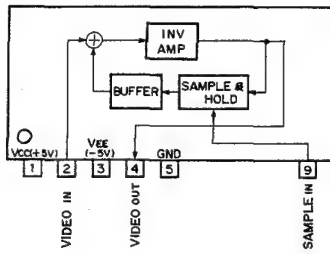


BH1215 (SONY)  
VIDEO AMPLIFIER AND DRIVER  
— PRINTED SIDE VIEW —

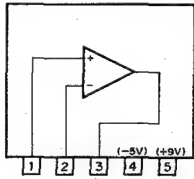




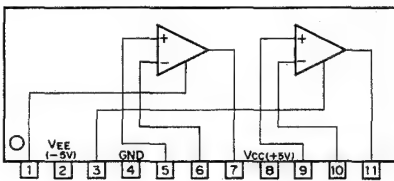
BH1216 (SONY)  
VIDEO AMPLIFIER WITH CLAMP  
— PRINTED SIDE VIEW —



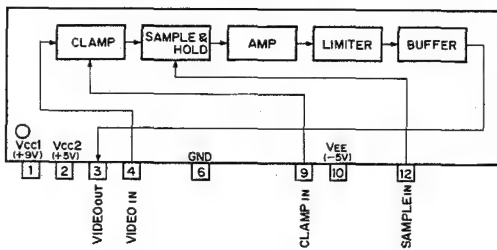
BH1217 (SONY)  
VIDEO AMPLIFIER  
— PRINTED SIDE VIEW —



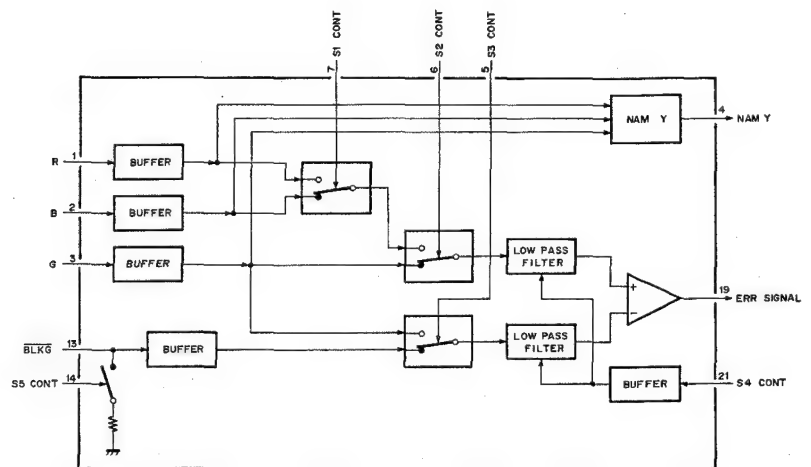
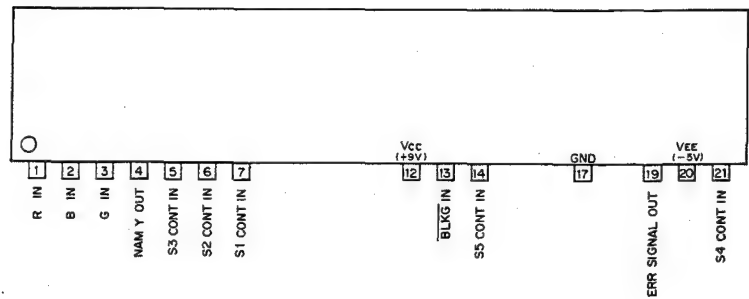
BH1218 (SONY)  
VIDEO AMPLIFIER  
— PRINTED SIDE VIEW —



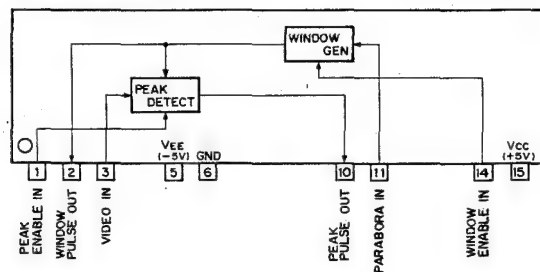
BH1219 (SONY)  
BH1219A (SONY)  
VIDEO DC CONVERTER  
— PRINTED SIDE VIEW —



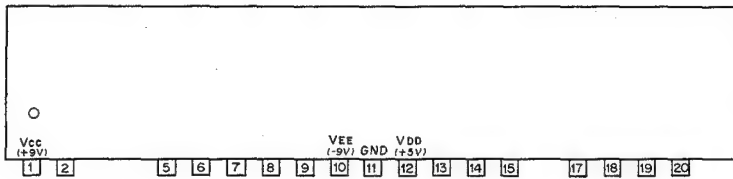
BH1220 (SONY)  
VIDEO SWITCHER AND ERROR SIGNAL GENERATOR  
— PRINTED SIDE VIEW —



BH1221 (SONY)  
SAMPLE PULSE GENERATOR  
— PRINTED SIDE VIEW —

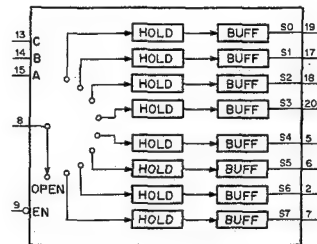


**BX1179 (SONY)**  
**8-CHANNEL SELECTABLE SAMPLING HOLDER**  
 — PRINTED SIDE —

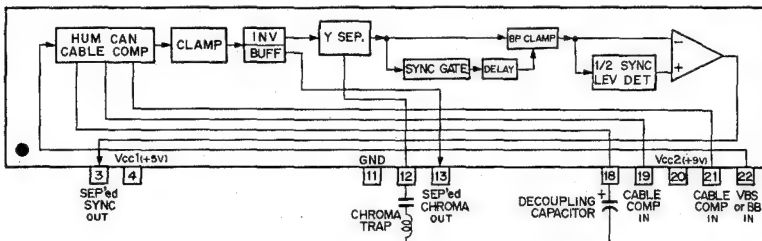


EN	C	B	A	"ON" CHANNEL
0	0	0	0	S0
0	0	0	1	S1
0	0	1	0	S2
0	0	1	1	S3
0	1	0	0	S4
0	1	0	1	S5
0	1	1	0	S6
0	1	1	1	S7
1	X	X	X	OPEN

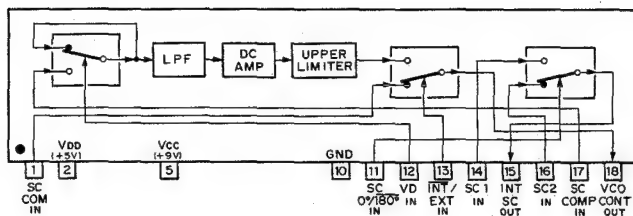
O:LOW LEVEL  
1:HIGH LEVEL  
X:DON'T CARE



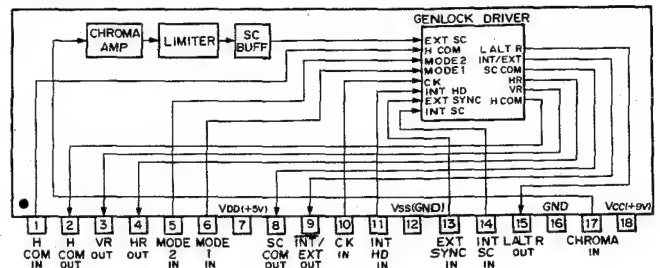
**BX1337 (SONY)**  
**SYNC SEPARATOR**  
**— REAR VIEW —**



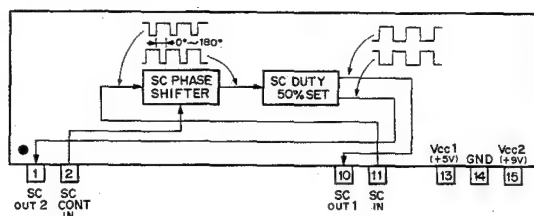
BX1338 (SONY)  
APC AMPLIFIER AND SC 0°/180° SELECTOR  
— REAR VIEW —



BX1340 (SONY)  
SC LIMITER AND GENLOCK DRIVER  
— REAR VIEW —



BX1339 (SONY)  
SC PHASE SHIFTER  
— REAR VIEW —

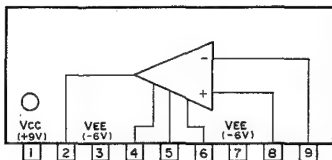


MODE SELECTION		
MODE 1	MODE 2	MODE
1	1	NTSC
0	0	PAL

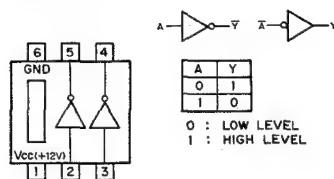
0; LOW LEVEL  
1; HIGH LEVEL



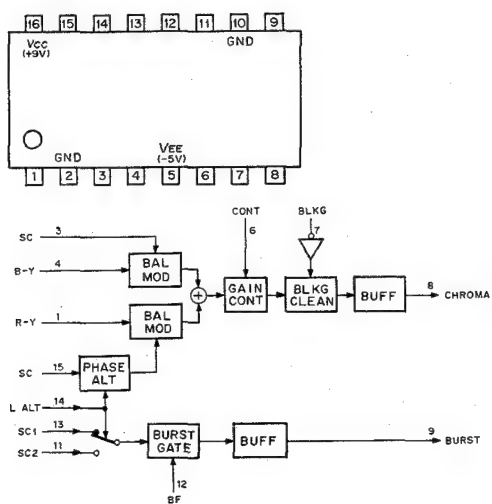
**BX1356 (SONY)**  
VIDEO OUTPUT AMPLIFIER  
— PRINTED SIDE —



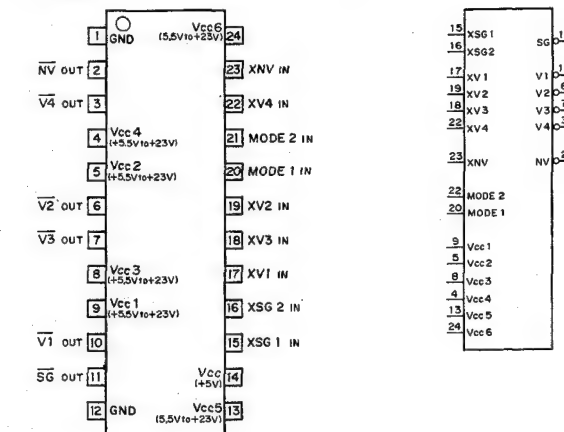
**CX20011 (SONY)**  
HIGH SPEED INVERTING DRIVER  
(C-MOS AND TTL COMPATIBLE)  
— TOP VIEW —



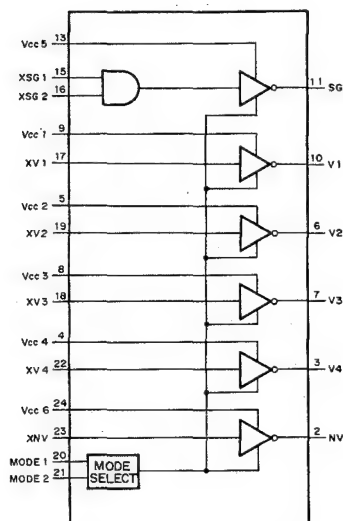
**CX22017 (SONY)**  
VIDEO SIGNAL PROCESSOR  
— TOP VIEW —



**CX20180 (SONY)**  
INVERTING DRIVER FOR CCD CLOCK WITH POWER SAVE  
— TOP VIEW —



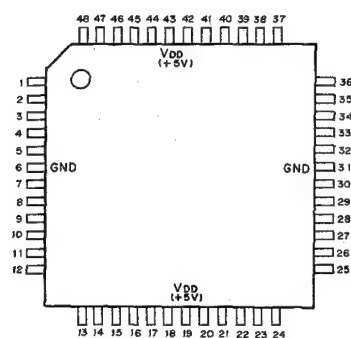
XV1-XV4; VERTICAL REGISTER TRANSMISSION CLOCK INPUT  
V1-V4; VERTICAL REGISTER TRANSMISSION CLOCK OUTPUT  
XSG1, XSG2; SENSER GATE PULSE INPUT  
SG; SENSER GATE PULSE OUTPUT  
XNV; DRIVER INPUT  
NV; DRIVER OUTPUT  
Vcc1; V1 OUTPUT PULSE VOLTAGE  
Vcc2; V2 OUTPUT PULSE VOLTAGE  
Vcc3; V3 OUTPUT PULSE VOLTAGE  
Vcc4; V4 OUTPUT PULSE VOLTAGE  
Vcc5; SG OUTPUT PULSE VOLTAGE  
Vcc6; NV OUTPUT PULSE VOLTAGE



MODE SELECTION		MODE
1	2	POWER SAVE
1	1	NORMAL
1	0	
0	1	
0	0	

0; LOW LEVEL  
1; HIGH LEVEL

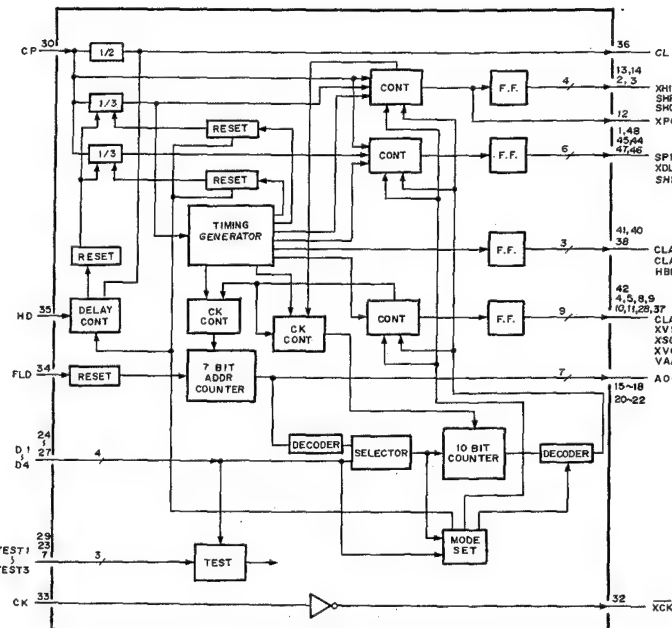
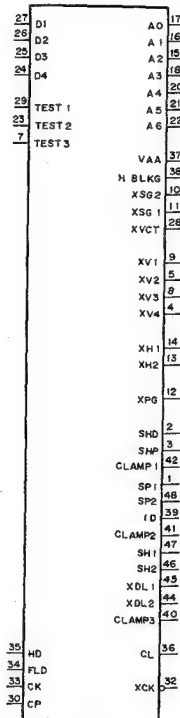
CX23047B (SONY) FLAT PACKAGE  
C-MOS TIMING PULSE GENERATOR WITH CX7930 FOR CCD CAMERA  
— TOP VIEW —



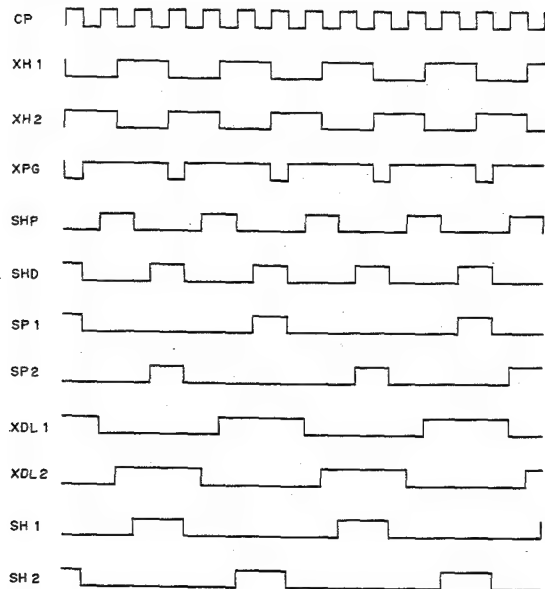
D1 - D4 ; EXTERNAL ROM DATA INPUT  
A0 - A6 ; EXTERNAL ROM ADDRESS OUTPUT

MODE SELECTION WITHOUT ROM

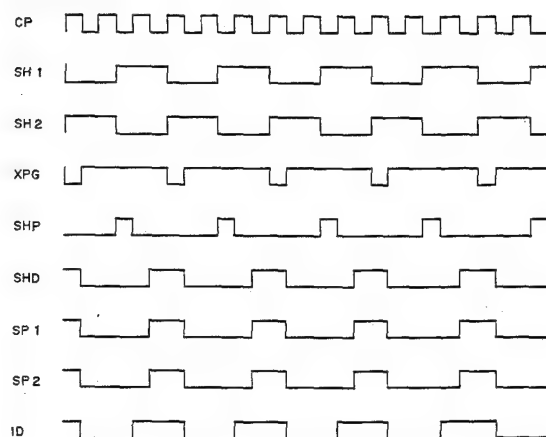
DATA INPUT				MODE	
D1	D2	D3	D4		
GND	GND	VDD	GND	B/W	CCIR
GND	GND	VDD	VDD		NTSC
GND	VDD	VDD	GND	COLOR	CCIR
GND	VDD	VDD	VDD		NTSC



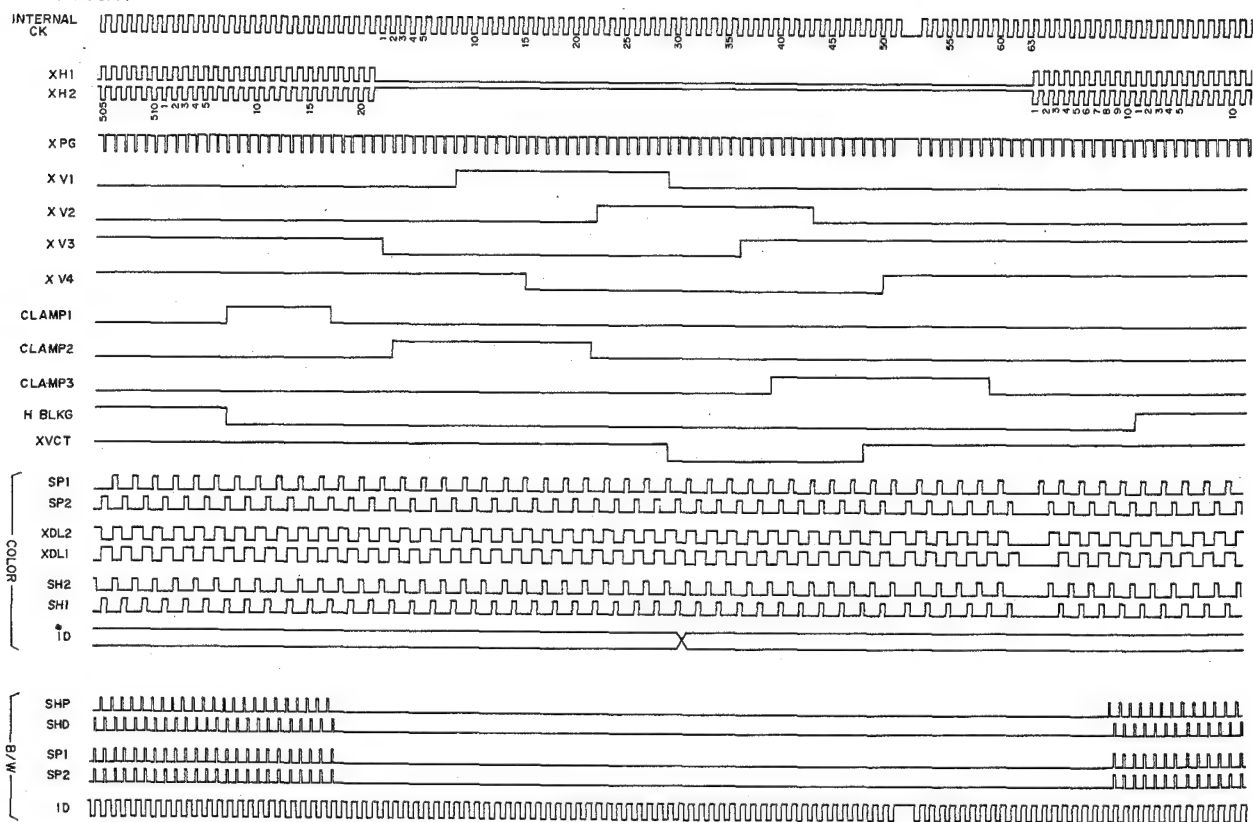
(COLOR ROM OFF)



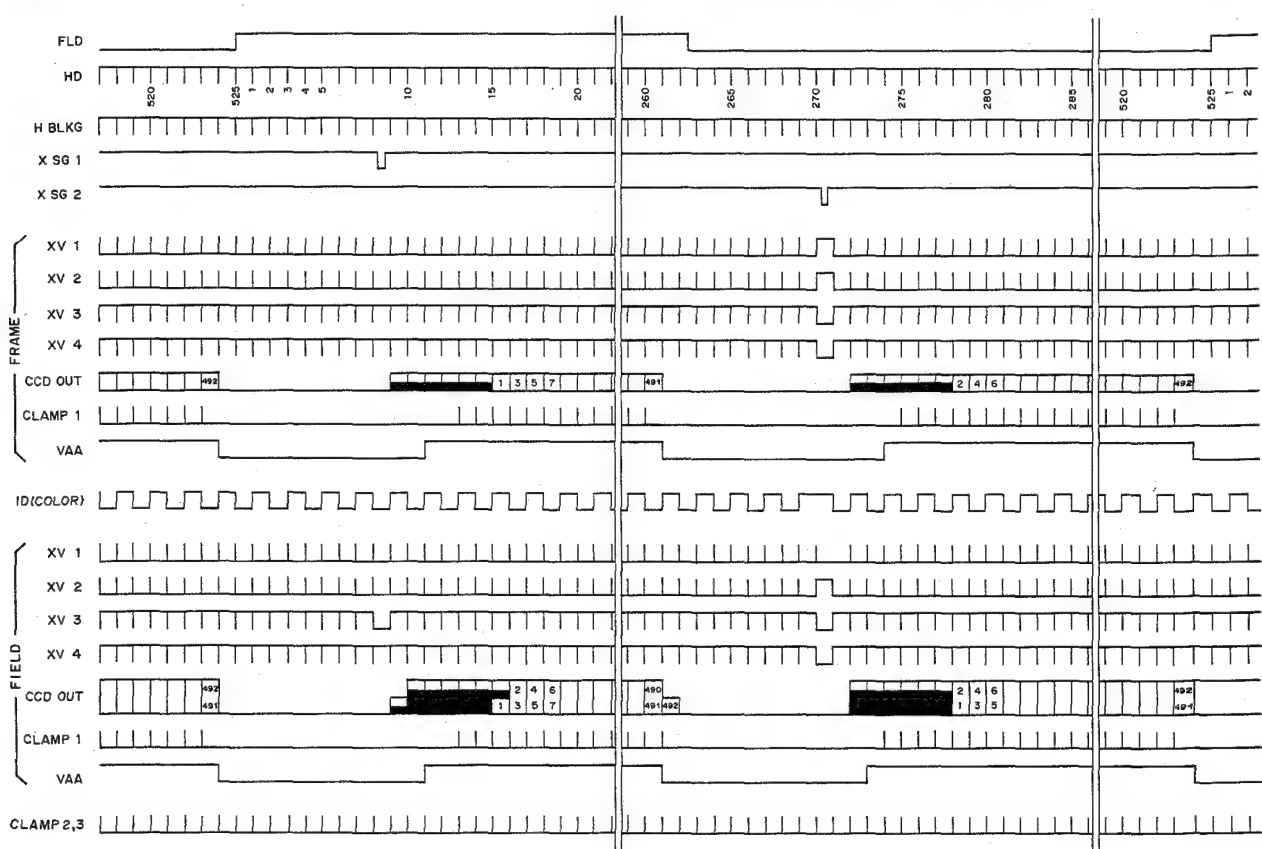
(B/W ROM OFF)



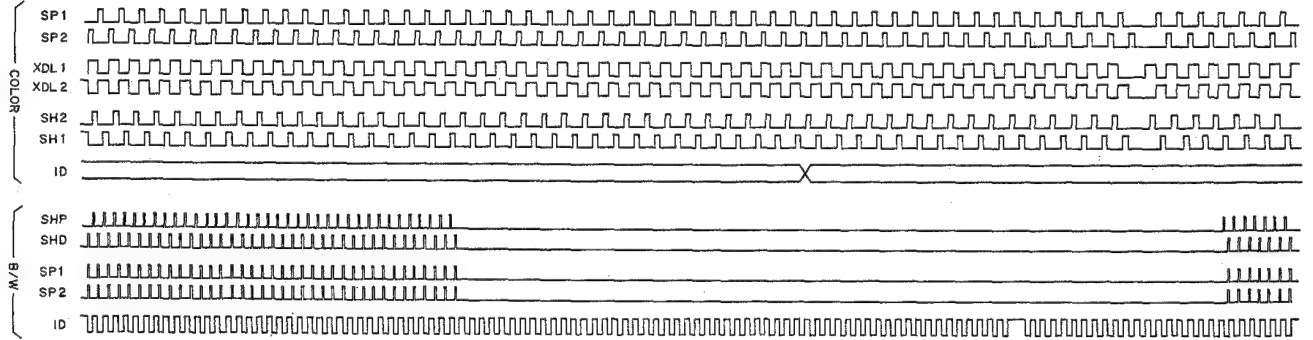
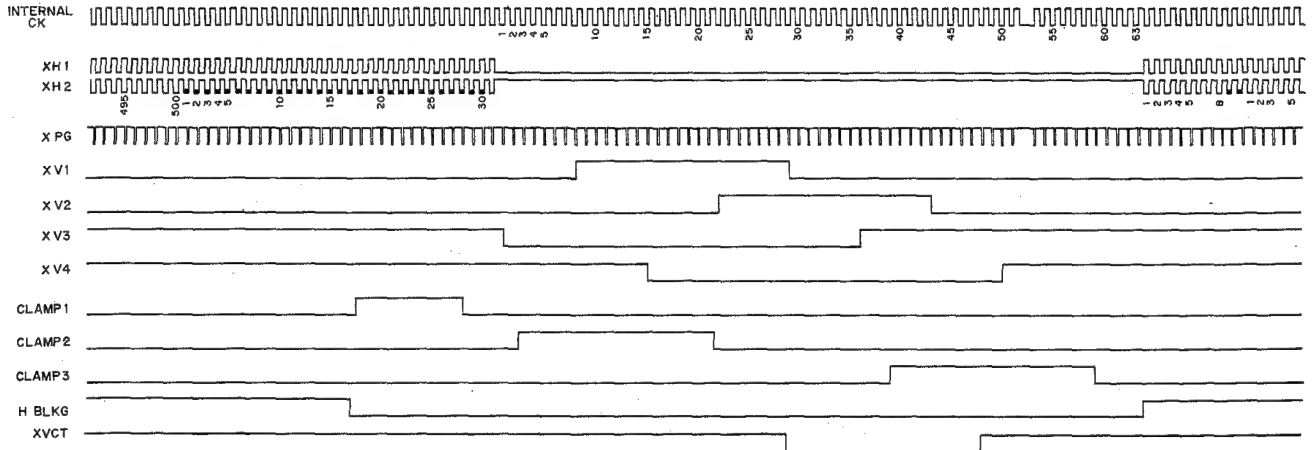
NTSC (ROM OFF)



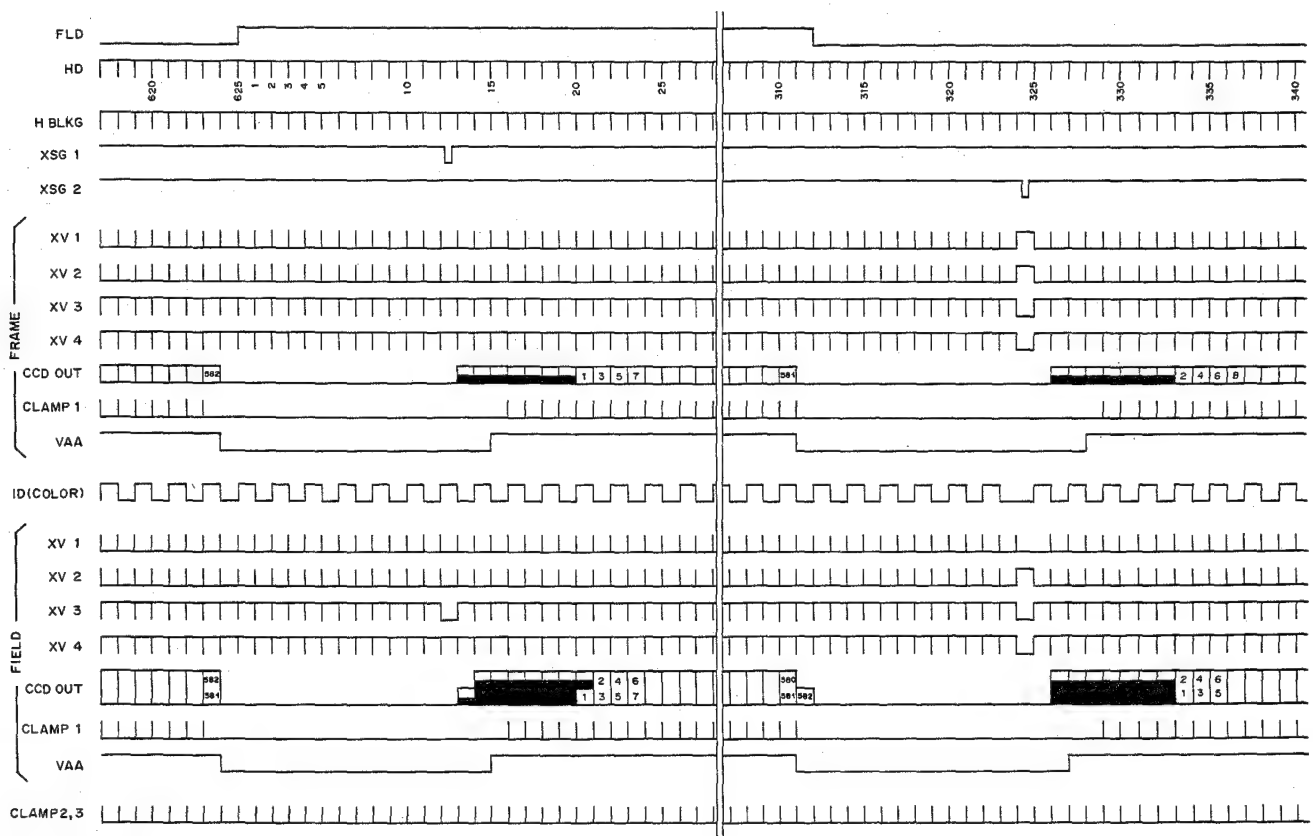
NTSC (ROM OFF)



CCIR (ROM OFF)

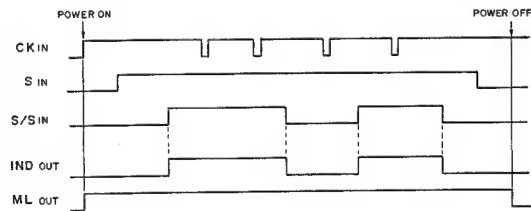
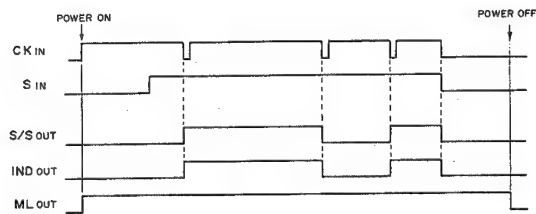
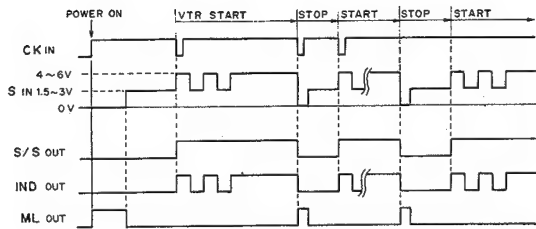
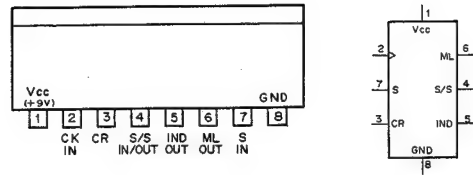


CCIR (ROM OFF)

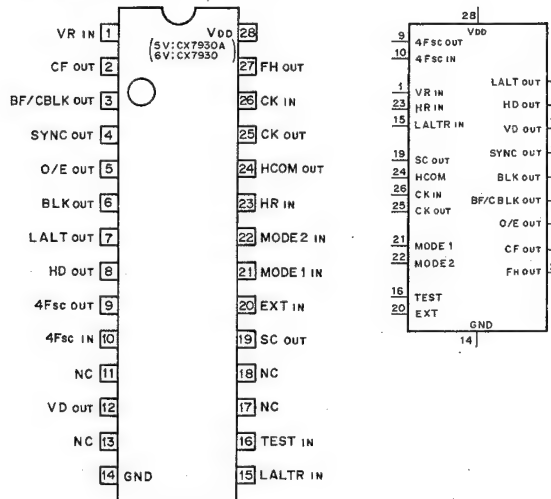


BVP-5 (J, UC)  
BVP-5P (EK)

## CX518 (SONY)



CX7930A (SONY) FLAT PACKAGE  
C-MOS SYNC GENERATOR (NTSC, PAL-M, PAL, SECAM)  
— TOP VIEW —



O/E : ODD/EVEN FIELD  
CF : COLOR FRAME PULSE  
HCOM : H COMPARATOR

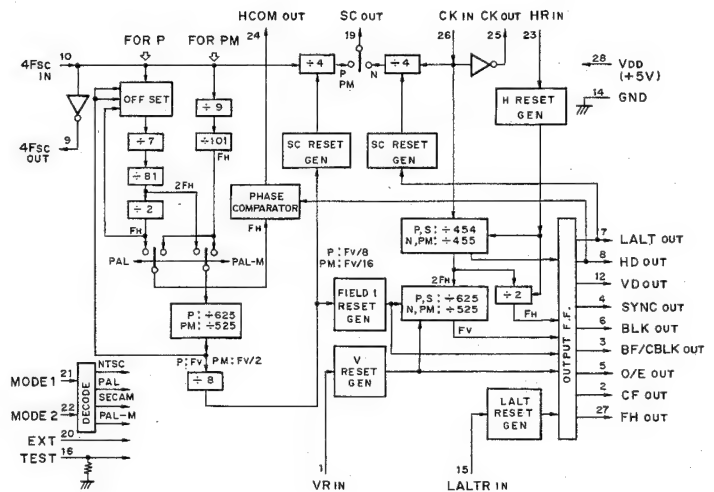
SYSTEM	4Fsc	CLOCK
NTSC	910 FH	910 FH
PAL	1135 FH + 2 FV	908 FH
PALM	909 FH	910 FH
SECAM		908 FH

INPUTS	MODE1	MODE2	SYSTEM
0	0	0	NTSC
0	1	0	SECAM
1	0	0	PALM
1	1	0	PAL

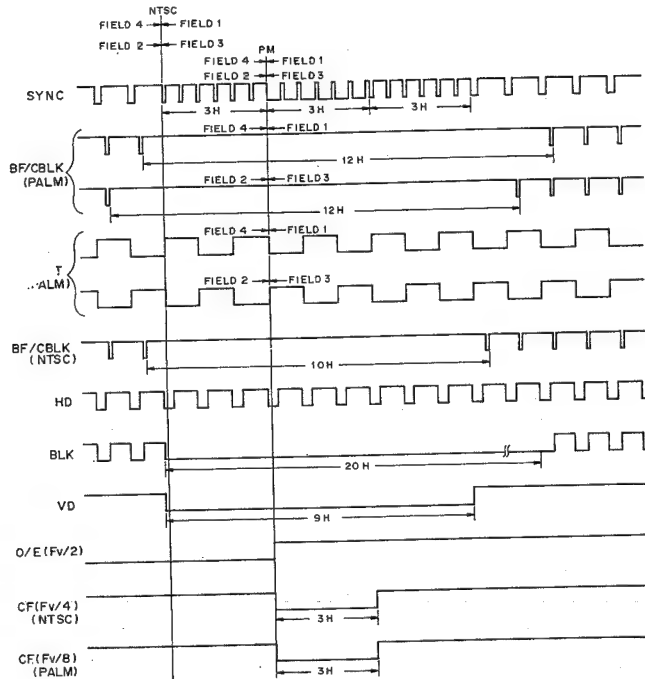
INPUTS	EXT	TEST	FUNCTION
0	0	0	INTERNAL
0	1	0	INVALID
1	0	0	EXT
1	1	1	TEST

0 : LOW LEVEL (GND)  
1 : HIGH LEVEL (VDD)

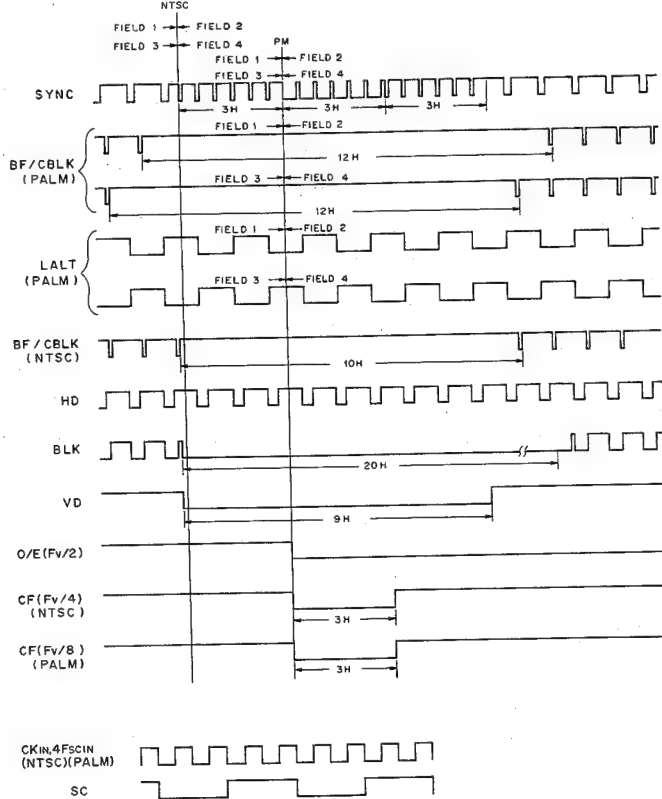
TEST '0': OPEN  
(INTERNALLY  
PULLED DOWN)



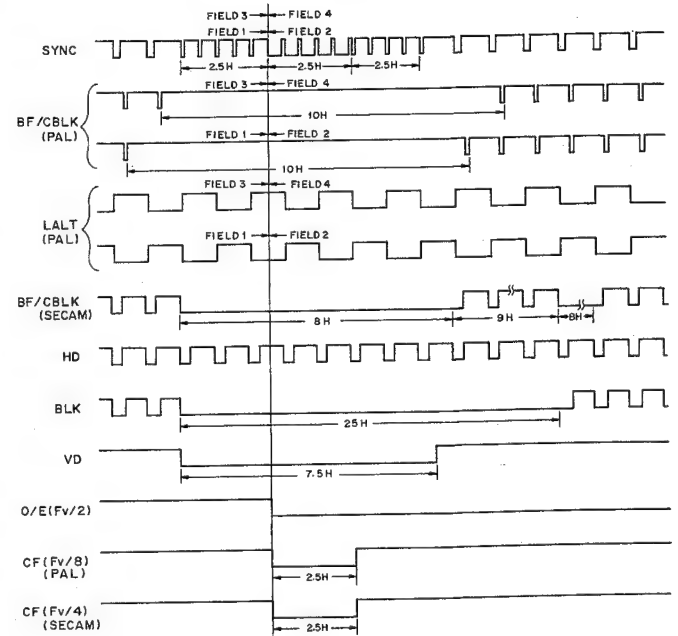
NTSC, PAL-M (FIELD 1,3)



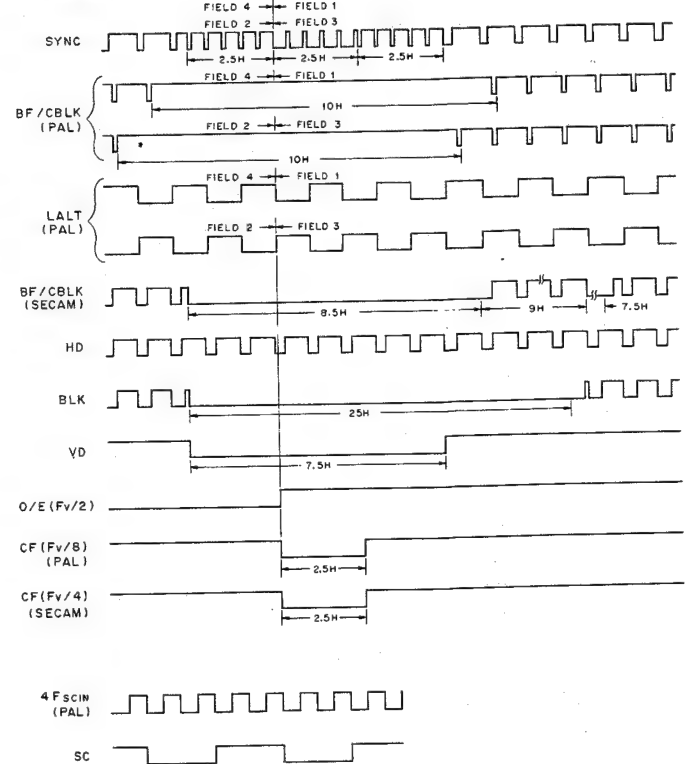
NTSC, PAL-M (FIELD 2,4)



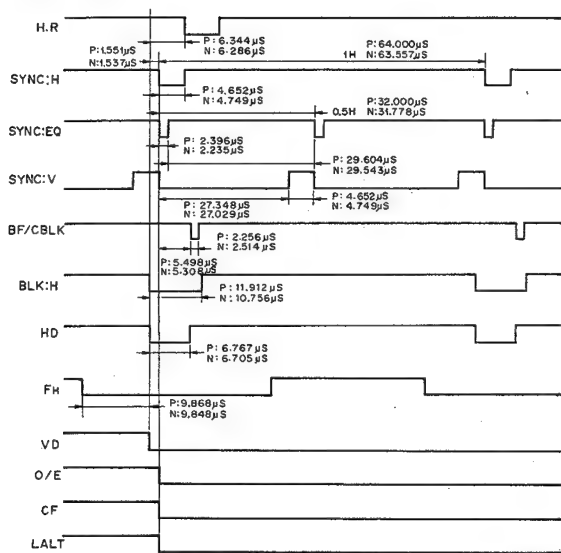
PAL, SECAM (FIELD 4,2)



PAL, SECAM (FIELD 1,3)



P: PAL, SECAM  
N: NTSC, PALM



## O COLOR BAR PATTERN

EIAJ COLOR BAR (NTSC)					
GRAY	YELLOW	CYAN	GREEN	MAGENTA	RED
BLUE					
- I	WHITE	+ Q		BLACK	

COLOR BAR + Y BAR (PAL) or (NTSC)							
WHITE	YELLOW	CYAN	GREEN	MAGENTA	RED	BLUE	BLACK
WHITE	GRAY	GRAY	GRAY	GRAY	GRAY	GRAY	BLACK

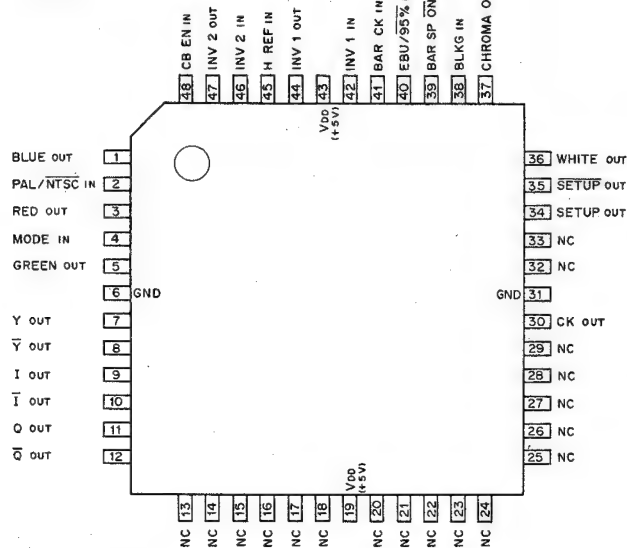
FULL FIELD COLOR BAR (NTSC)					
GRAY	YELLOW	CYAN	GREEN	MAGENTA	RED
BLUE					

95% COLOR BAR (PAL)							
WHITE	YELLOW	CYAN	GREEN	MAGENTA	RED	BLUE	BLACK

SMPTE COLOR BAR (NTSC)					
GRAY	YELLOW	CYAN	GREEN	MAGENTA	RED
BLUE	BLACK	MAGENTA	BLACK	CYAN	BLACK
- I	WHITE	+ Q	BLACK	-4 BLACK	1.4 BLACK

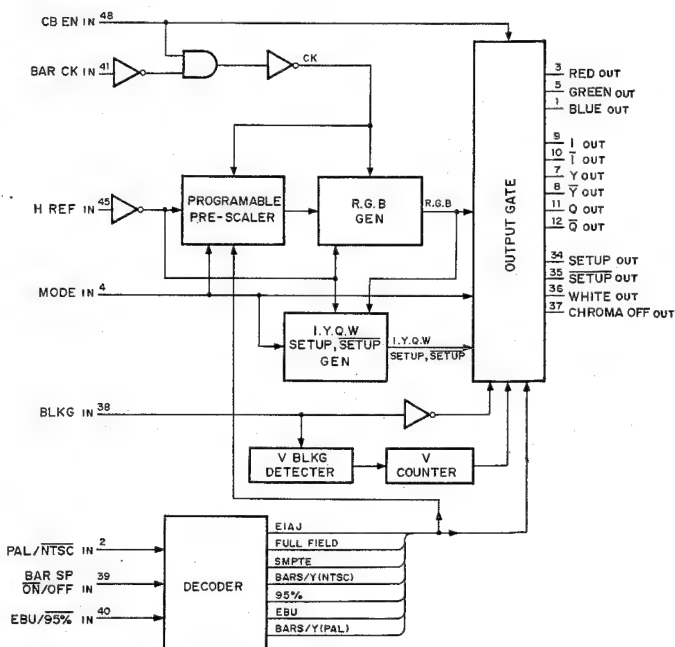
EBU COLOR BAR (PAL)							
WHITE	YELLOW	CYAN	GREEN	MAGENTA	RED	BLUE	BLACK

CX7968A (SONY)  
C-MOS COLOR BAR GENERATOR  
— TOP VIEW —

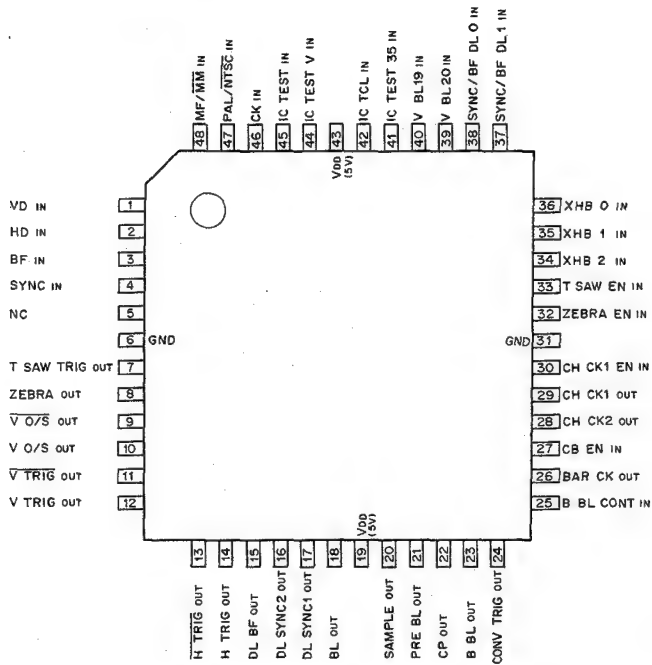


INPUT				FUNCTION
PAL/NTSC	MODE	EBU/95%	BAR SP	
0	0	0	0	EIAJ COLOR BAR
0	0	0	1	FULL FIELD COLOR BAR
0	0	1	0	INHIBIT
0	0	1	1	INHIBIT
0	1	0	0	EIAJ COLOR BAR
0	1	0	1	FULL FIELD COLOR BAR
0	1	1	0	SMPTE COLOR BAR
0	1	1	1	COLOR BAR + Y BAR
1	0	0	0	95% COLOR BAR
1	0	0	1	INHIBIT
1	0	1	0	EBU COLOR BAR
1	0	1	1	INHIBIT
1	1	0	0	95% COLOR BAR
1	1	0	1	COLOR BAR + Y BAR
1	1	1	0	EBU COLOR BAR
1	1	1	1	INHIBIT

0: LOW LEVEL  
1: HIGH LEVEL



CX7969 (SONY)  
C-MOS PULSE GENERATOR  
— TOP VIEW —



#### 1. SYSTEM DESIGNATION

INPUT	SYSTEM
PAL/NTSC IN	
1	PAL, SECAM
0	NTSC, PALM

#### 2. TYPE OF TUBE

INPUT	FUNCTION
MF/MM IN	
1	MAG-STA TUBE
0	MAG-MAGTUBE

#### 3. V BLKG WIDTH (NTSC ONLY)

INPUT	V BLKG WIDTH
V BL19 V BL20	
1 X	19H
0 0	20H
0 1	21H

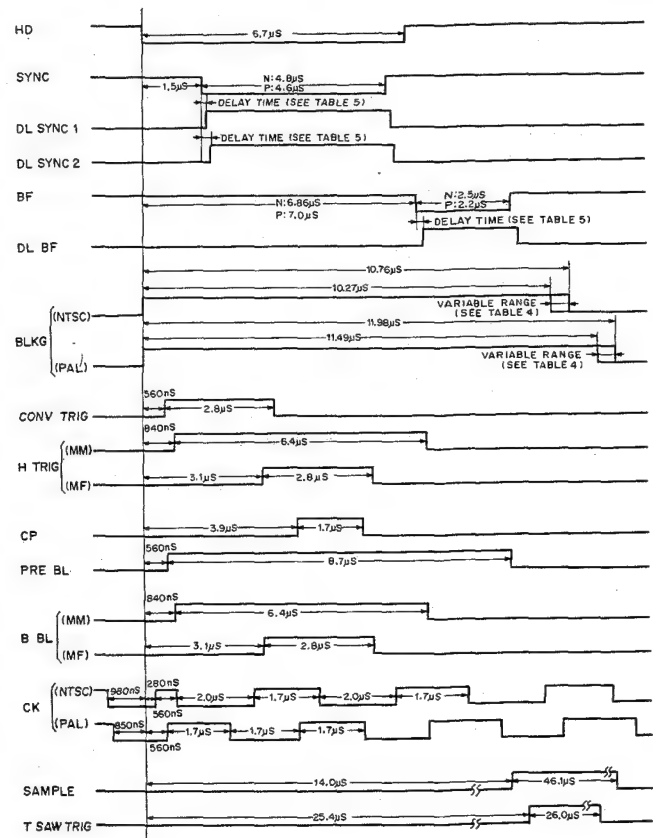
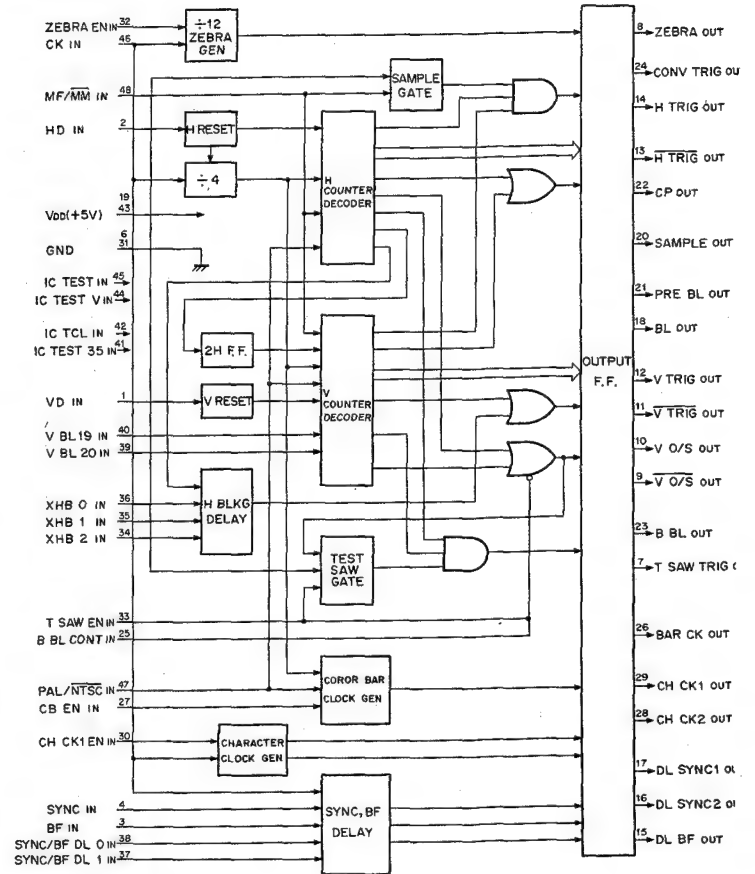
#### 4. H BLKG WIDTH

INPUT			BLKG WIDTH (μS)	
XHB2	XHB1	XHB0	NTSC	PAL
1	1	1	10.27	11.49
1	1	0	10.34	11.56
1	0	1	10.41	11.63
1	0	0	10.48	11.70
0	1	1	10.55	11.77
0	1	0	10.62	11.84
0	0	1	10.69	11.91
0	0	0	10.76	11.98

#### 5. DELAY TIME

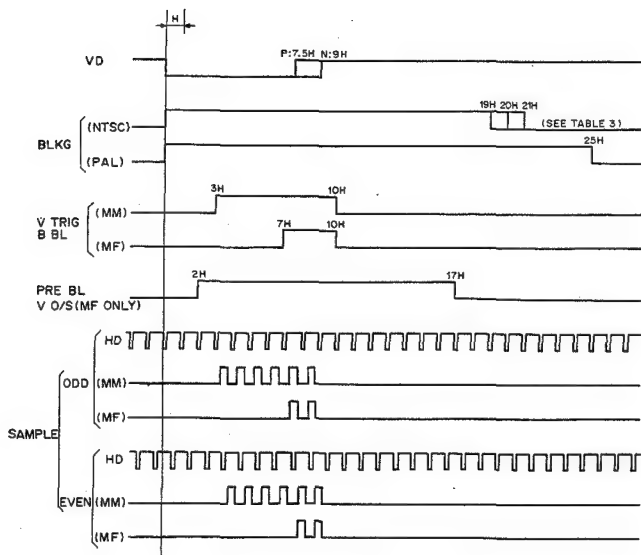
INPUT		DELAY TIME (ns)		
SYNC/BF DL1	SYNC/BF DL2	DL SYNC 1	DL SYNC 2	DL BF
1	1	140	210	140
1	0	210	280	210
0	1	630	700	630
0	0	700	770	700

1; HIGH LEVEL  
0; LOW LEVEL  
X; DON'T CARE

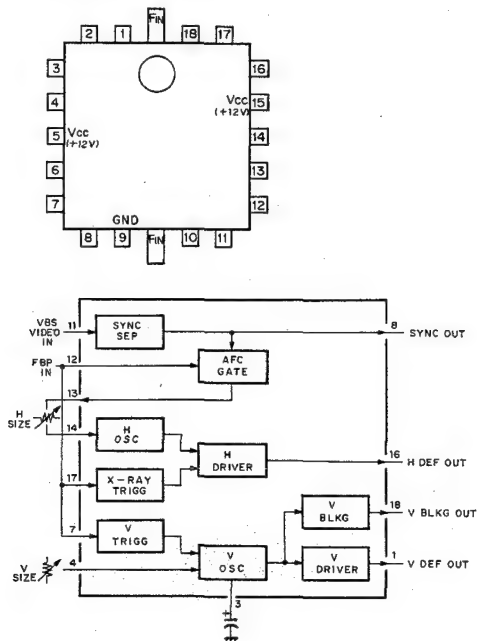


BVP-5 (J, UC)  
BVP-5P (EK)

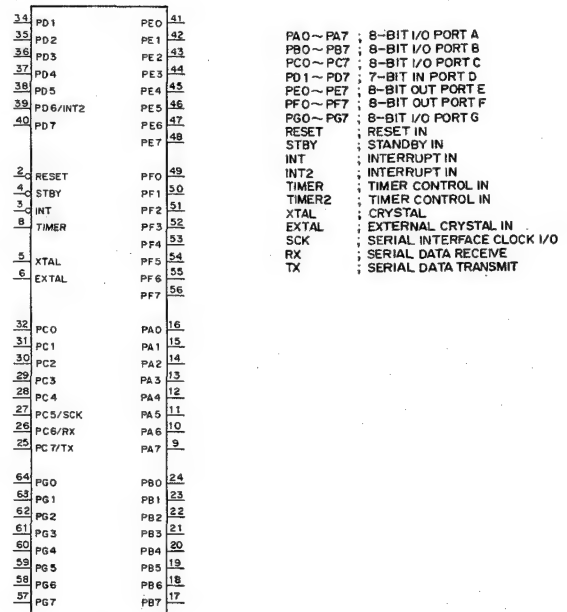
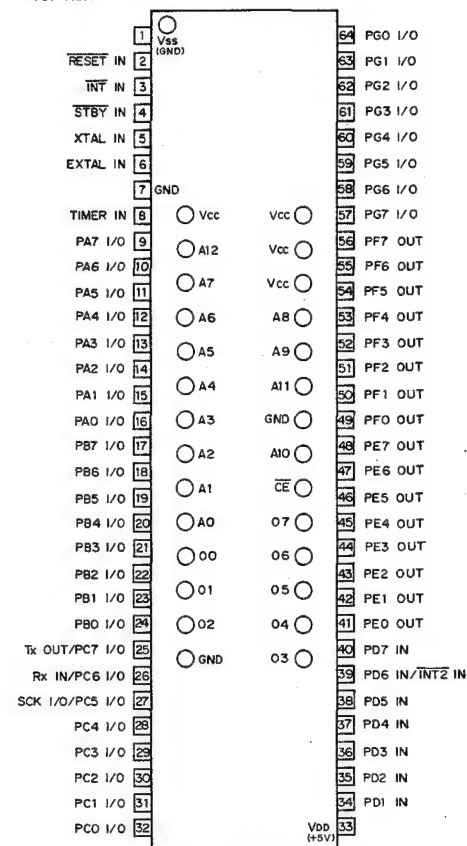


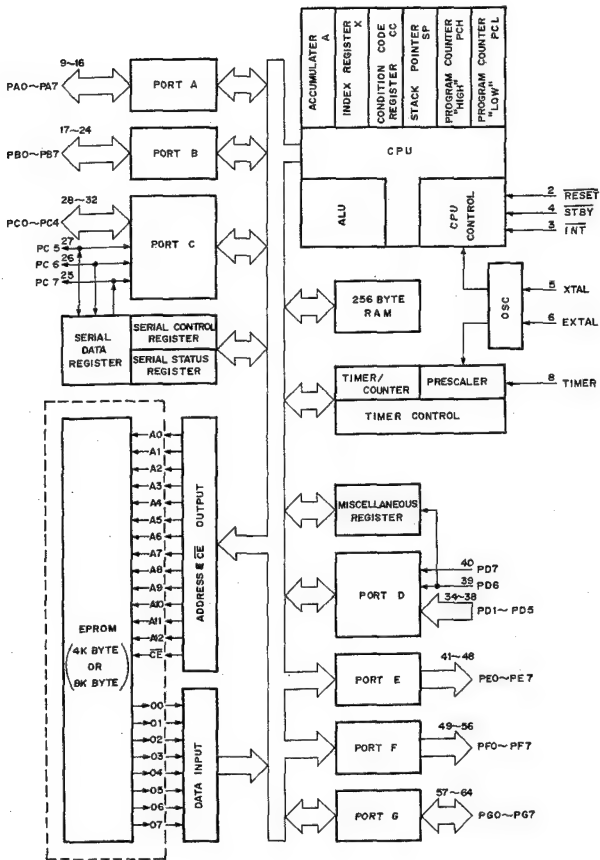


HA11423MP (HITACHI) FLAT PACKAGE  
TV H/V SYNC SIGNAL PROCESSOR  
— TOP VIEW —

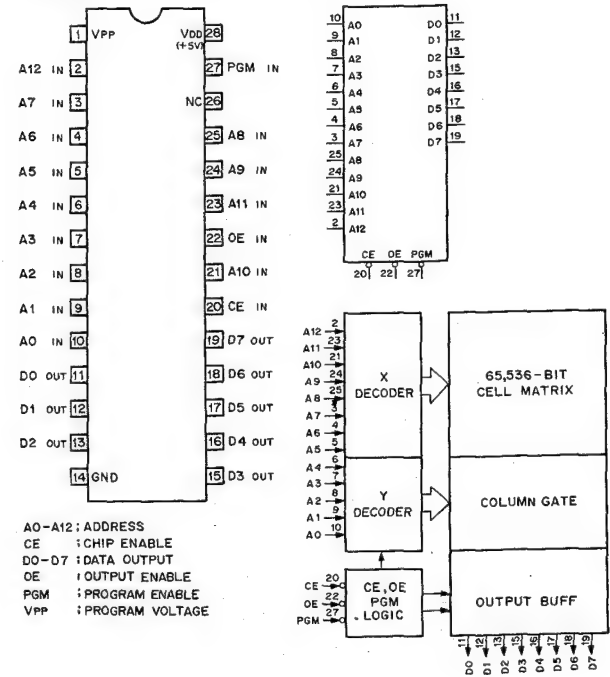


HD63P05Y0 (HITACHI)  
C-MOS 8-BIT MICROCOMPUTER UNIT  
— TOP VIEW —





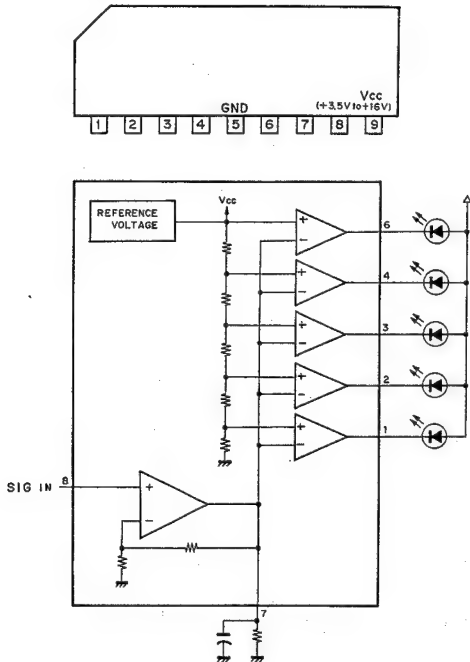
HN27C64G-20 (HITACHI) (ACCESS TIME = 200 nS)  
C-MOS 64K (8K-B) ERASABLE PROM WITH 3-STATE OUTPUTS  
— TOP VIEW —



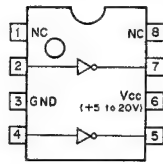
A <sub>n</sub>	CE	OE	PGM	V <sub>PP</sub>	D <sub>n</sub>	FUNCTION
A <sub>n</sub>	0	0	1	+5V	D OUT	READ
A <sub>n</sub>	0	1	1	+5V	HI-Z	OUTPUT DISABLE
A <sub>n</sub>	0	0	0	+5V	HI-Z	OUTPUT DISABLE
X	1	X	X	+5V	HI-Z	STANDBY
A <sub>n</sub>	0	X	1	+21V	D IN	PGM
A <sub>n</sub>	0	0	1	+21V	D OUT	PGM VERIFY
X	1	X	X	+21V	HI-Z	PGM INH

0; LOW LEVEL  
1; HIGH LEVEL  
X; DON'T CARE  
HI-Z; HIGH IMPEDANCE

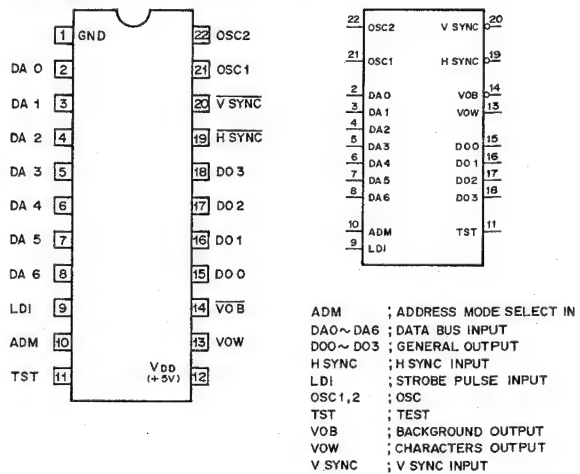
LB1423N (SANYO)  
LED DRIVER FOR AC/DC LEVEL METER  
— SIDE VIEW —



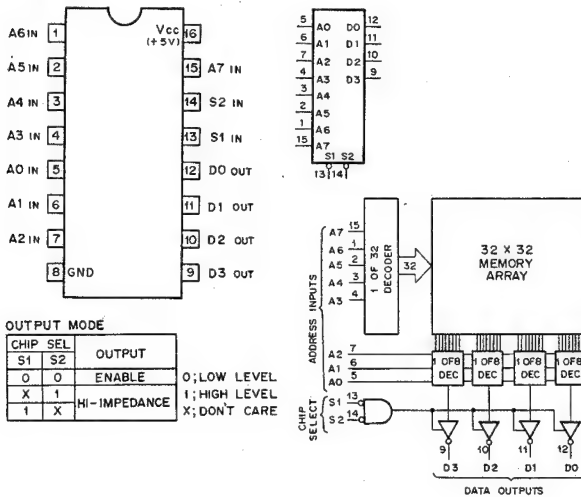
MMH0026CP1 (MOTOROLA)  
BIPOLAR MOS CLOCK DRIVER  
— TOP VIEW —



MN1237AD (MATSUSHITA)  
C-MOS INDICATES DATA OF 60 CHARACTERS CRT INTERFACE  
— TOP VIEW —



MB7052PF (FUJITSU) FLAT PACKAGE  
1024-BIT (256x4) PROM (3-STATE OUTPUT)  
— TOP VIEW —



WORD/ADDRESS TABLE

WORD	A7	A6	A5	A4	A3	A2	A1	A0
0	00	0	0	0	0	0	0	0
1	01	0	0	0	0	0	0	1
2	02	0	0	0	0	0	1	0
3	03	0	0	0	0	1	0	0
4	04	0	0	0	1	0	0	0
5	05	0	0	1	0	0	0	0
6	06	0	0	1	0	1	0	0
7	07	0	0	1	1	0	0	0
8	08	0	0	1	1	1	0	0
9	09	0	1	0	0	0	0	0
10	0A	0	1	0	0	0	1	0
11	0B	0	1	0	0	1	0	0
12	0C	0	1	0	1	0	0	0
13	0D	0	1	0	1	1	0	0
14	0E	0	1	1	0	0	0	0
15	0F	0	1	1	0	1	0	0
16	10	0	1	1	1	0	0	0
17	11	0	1	1	1	1	0	0
18	12	0	1	1	1	1	1	0
19	13	0	1	1	1	1	1	1
20	14	1	0	0	0	0	0	0
21	15	1	0	0	0	0	0	1
22	16	1	0	0	0	0	1	0
23	17	1	0	0	0	0	1	1
24	18	1	0	0	0	1	0	0
25	19	1	0	0	0	1	0	1
26	1A	1	0	0	0	1	1	0
27	1B	1	0	0	0	1	1	1
28	1C	1	0	1	0	0	0	0
29	1D	1	0	1	0	0	0	1
30	1E	1	0	1	0	0	1	0
31	1F	1	0	1	0	0	1	1
32	20	1	1	0	0	0	0	0
33	21	1	1	0	0	0	0	1
34	22	1	1	0	0	0	1	0
35	23	1	1	0	0	0	1	1
36	24	1	1	0	1	0	0	0
37	25	1	1	0	1	0	0	1
38	26	1	1	0	1	0	1	0
39	27	1	1	0	1	0	1	1
40	28	1	1	0	1	1	0	0
41	29	1	1	0	1	1	0	1
42	2A	1	1	0	1	1	1	0
43	2B	1	1	0	1	1	1	1
44	2C	1	1	1	0	0	0	0
45	2D	1	1	1	0	0	0	1
46	2E	1	1	1	0	0	1	0
47	2F	1	1	1	0	0	1	1
48	30	1	1	1	0	1	0	0
49	31	1	1	1	0	1	0	1
50	32	1	1	1	0	1	1	0
51	33	1	1	1	0	1	1	1
52	34	1	1	1	1	0	0	0
53	35	1	1	1	1	0	0	1
54	36	1	1	1	1	0	1	0
55	37	1	1	1	1	0	1	1
56	38	1	1	1	1	1	0	0
57	39	1	1	1	1	1	0	1
58	3A	1	1	1	1	1	1	0
59	3B	1	1	1	1	1	1	1
60	3C	1	1	1	1	1	1	1
61	3D	1	1	1	1	1	1	1
62	3E	1	1	1	1	1	1	1
63	3F	1	1	1	1	1	1	1

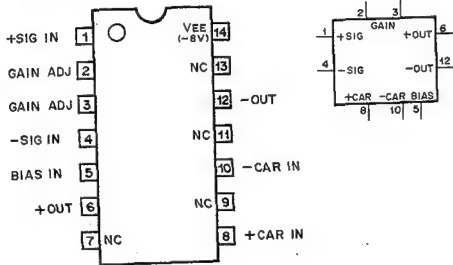
DATA CODE/ACTUAL DATA

DATA CODE	D3	D2	D1	D0
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

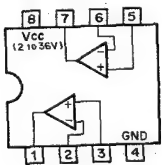
IN HEXADECIMAL  
IN DECIMAL

A B C D E F G H I J  
K L M N O P Q R S T  
U V W X Y Z  
0 1 2 3 4 5 6 7 8 9  
. : - ? / [ ]

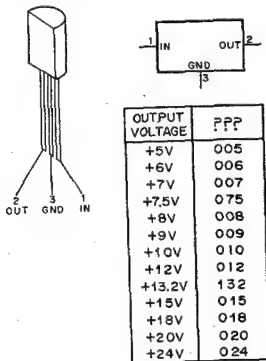
**NJM1496M (JRC) FLAT PACKAGE**  
BALANCED MODULATOR/DEMODULATOR  
— TOP VIEW —



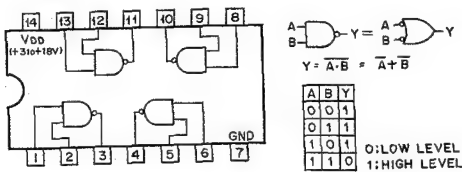
**NJM2903M (JRC) FLAT PACKAGE**  
VOLTAGE COMPARATOR  
— TOP VIEW —



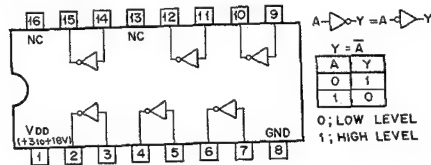
**TA78L 777AP (TOSHIBA)**  
POSITIVE VOLTAGE REGULATOR (150mA)



**TC4011BF (TOSHIBA) FLAT PACKAGE**  
C-MOS 2-INPUT NAND GATE  
— TOP VIEW —

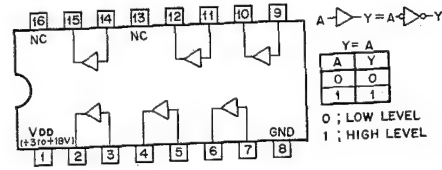


**TC4049BF (TOSHIBA) FLAT PACKAGE**  
C-MOS INVERTING TYPE BUFFER/CONVERTER  
— TOP VIEW —

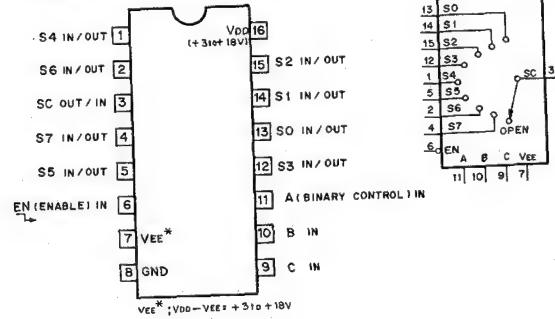


BVP-5 (J, UC)  
BVP-5P (EK)

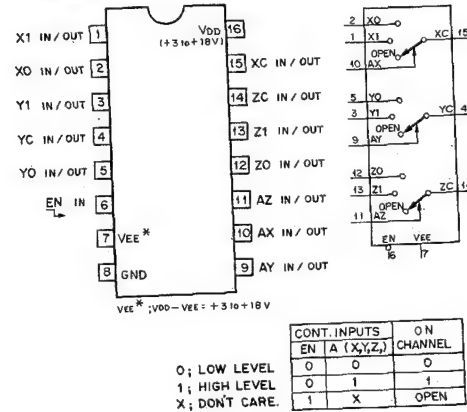
**TC4050BF (TOSHIBA) FLAT PACKAGE**  
C-MOS NON-INVERTING TYPE BUFFER/CONVERTER  
— TOP VIEW —



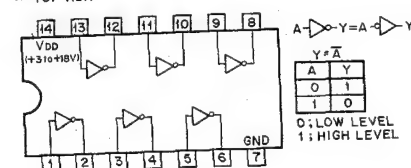
**TC4051BF (TOSHIBA) FLAT PACKAGE**  
C-MOS 8-CHANNEL MULTIPLEXER/DEMULTIPLEXER  
— TOP VIEW —



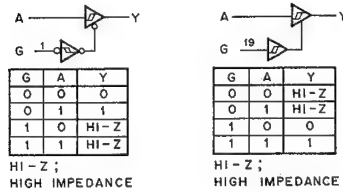
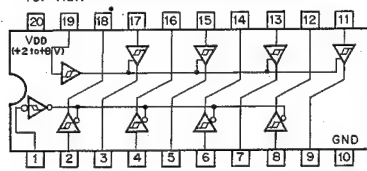
**TC4053BF (TOSHIBA) FLAT PACKAGE**  
C-MOS 2-CHANNEL MULTIPLEXER/DEMULTIPLEXER  
— TOP VIEW —



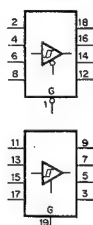
**TC4069UBF (TOSHIBA) FLAT PACKAGE**  
C-MOS INVERTER  
— TOP VIEW —



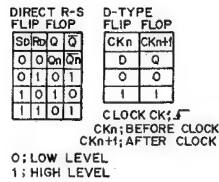
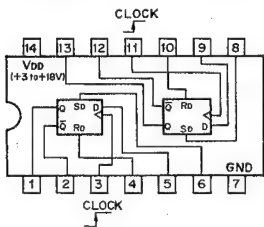
TC40H241F (TOSHIBA) FLAT PACKAGE  
C-MOS 3-STATE SCHMITT TRIGGER BUFFER/LINE DRIVER  
— TOP VIEW —



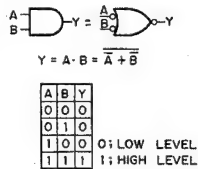
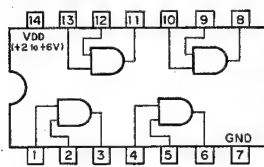
TC40H241F



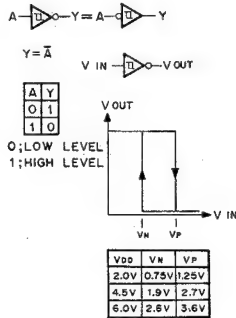
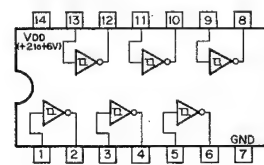
TC504013BF (TOSHIBA) FLAT PACKAGE  
C-MOS D-TYPE FLIP FLOP WITH DIRECT SET/RESET  
— TOP VIEW —



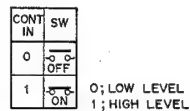
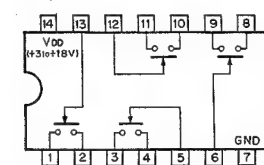
TC74HC08F (TOSHIBA) FLAT PACKAGE  
C-MOS 2-INPUT AND GATE  
— TOP VIEW —



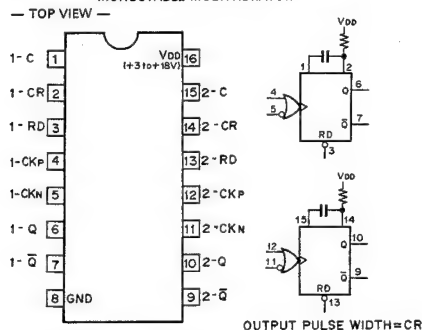
TC74HC14F (TOSHIBA) FLAT PACKAGE  
C-MOS SCHMITT TRIGGER INVERTER  
— TOP VIEW —



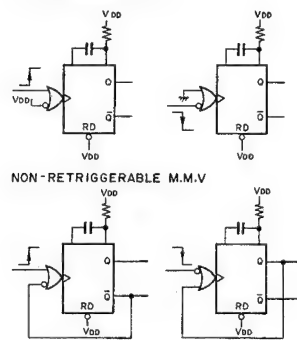
TC74HC4066F (TOSHIBA) FLAT PACKAGE  
C-MOS BILATERAL ANALOG SWITCH  
— TOP VIEW —



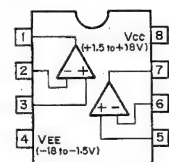
TC74HC4538F (TOSHIBA) FLAT PACKAGE  
C-MOS DUAL RETRIGGERABLE/NON-RETRIGGERABLE  
MONOSTABLE MULTIVIBRATOR  
— TOP VIEW —



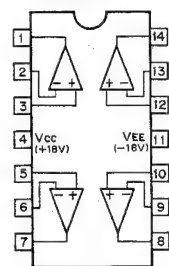
RETRIGGERABLE M.M.V. OUTPUT PULSE WIDTH=CR



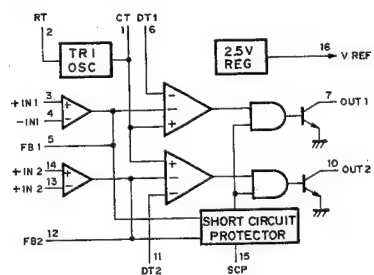
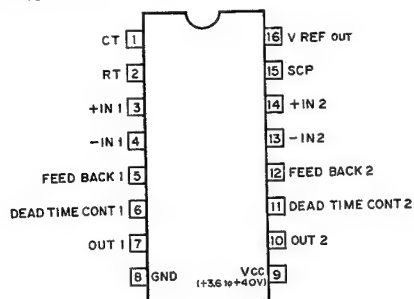
TL062CPS (TI) FLAT PACKAGE  
OPERATIONAL AMPLIFIER  
(JFET INPUT)  
— TOP VIEW —



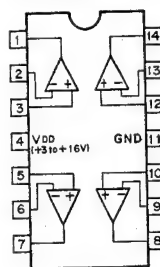
TL064CNS (TI) FLAT PACKAGE  
OPERATIONAL AMPLIFIER  
(J FET-INPUT)  
— TOP VIEW —



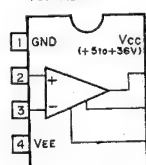
TL1451CNS (TI) FLAT PACKAGE  
DUAL PWM POWER CONTROLLER  
— TOP VIEW —



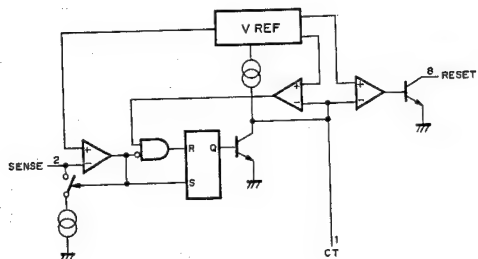
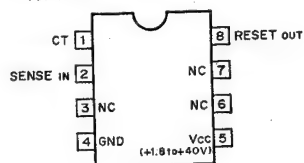
TLC27M4CNS (TI) FLAT PACKAGE  
OPERATIONAL AMPLIFIER  
— TOP VIEW —



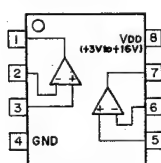
uPC311G2 (NEC) FLAT PACKAGE  
VOLTAGE COMPARATOR  
— TOP VIEW —



TL7700 CPS (TI)  
VARIABLE SUPPLY VOLTAGE SUPERVISOR  
— TOP VIEW —



TLC27M2CPS (TI) FLAT PACKAGE  
OPERATIONAL AMPLIFIER  
— TOP VIEW —





## SECTION 8

### SPARE PARTS

#### 8-1. PARTS INFORMATION

##### 1. Safety Related Component Warning

Components identified by shading marked with **A** on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose parts numbers appear as shown in this manual or in service bulletins and service manual supplements published by Sony.

##### 2. Replacement Parts supplied from Sony Parts Center will sometimes have different shape and outside view from the parts which actually in use. This is due to "accommodating the improved parts and/or engineering changes" or "standardization of genuine parts."

- This manual's exploded views and electrical spare parts lists are indicating the parts numbers of "the standardized genuine parts at present".
- Regarding engineering parts changes in our engineering department, refer Sony service bulletins and service manual supplements.

##### 3. Printed Components in Bold-Face type on the exploded views and electrical spare parts list are normally stocked for replacement purposes. The remaining parts are not normally required for routine service work. Orders for parts not shown in Bold-Face type will be processed, but allow for additional delivery time.

##### 4. Item with no part number and/or no description are not stocked because they are seldom required for routine service.

##### 5. Abbreviation

REF. NO.	DESCRIPTION	REF. NO.	DESCRIPTION	REF. NO.	DESCRIPTION
<b>C</b>	CAPACITOR	<b>IC</b>	IC	<b>RV</b>	VARIABLE RESISTOR
<b>CN</b>	CONNECTOR	<b>L</b>	INDUCTOR	<b>S</b>	SWITCH
<b>CV</b>	VARIABLE CAPACITOR	<b>LV</b>	VARIABLE INDUCTOR	<b>T</b>	TRANSFORMER
<b>D</b>	DIODE	<b>Q</b>	TRANSISTOR	<b>TH</b>	THERMISTOR
<b>DL</b>	DELAY LINE	<b>R</b>	RESISTOR	<b>X</b>	OSCILLATOR
<b>FL</b>	FILTER	<b>RP</b>	RESISTOR BLOCK		

All capacitors are in micro farads unless otherwise specified.  
 All inductors are in micro henries unless otherwise specified.  
 All resistors are in ohms.

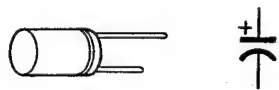


8-2. ELECTRICAL PARTS

Parts that are not listed in the "reference numbers order list" are shown in following table.  
Reference numbers are omitted.

CAPACITOR

ELECTROLYTIC CAPACITOR      0.1μF through 100μF ±20%  
4WV through 50WV



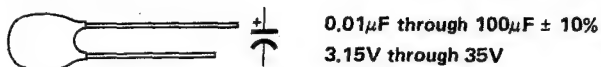
Parts No. 1-124-□□□-00

Value		Part No. -□□□-
0.1μF	50V	249
0.15	50	250
0.22	50	251
0.33	50	252
0.47	50	253
0.68	50	254
1	50	255
1.5	50	256
2.2	35	257
	50	
3.3	25	258
	35	
	50	
4.7	16	245

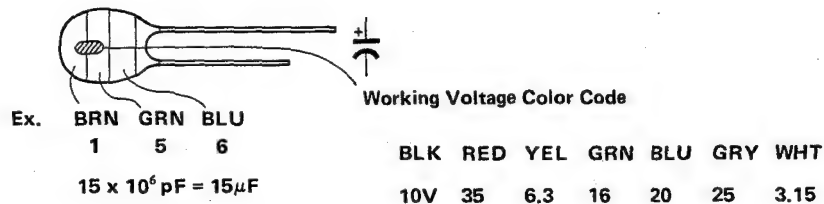
Value		Part No. -□□□-
4.7μF	25V	245
	35	
	50	259
6.8	10	239
	16	
	25	
	35	246
10	50	260
	6.3	233
	10	
	16	
	25	240
	35	247
	50	261

Value		Part No. -□□□-
22μF	6.3V	222
	10	234
	16	
	25	248
33	35	248
	4	220
	6.3	229
	10	
47	16	242
	25	242
	6.3	224
	10	236
100	16	
	6.3	225

## TANTALUM CAPACITOR



NOTE: The value of the parts that are marked by \* in the below table are indicated by color code. (to the value with  $\pm$  20%)



Parts No. 1-131-□□□-00

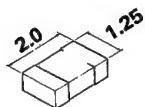
Value	Parts No. -□□□-
0.01 $\mu$	35V *396
0.015	35 *397
0.022	35 *398
0.033	35 *399
0.047	35 *400
0.068	35 *401
0.1	35 *402
0.15	35 *403
0.22	35 *404
0.33	25 *409
	35 *405
0.47	20 *412
	35 *406
0.68	16 *415
	25 *410
	35 *407
1.0	10 *418
	20 *413

Value	Parts No. -□□□-
1.0 $\mu$	35V *408
1.5	6.3 *421
	16 *416
	25 *411
	35 348
2.2	3.15 *424
	10 *419
	20 *414
	25 355
	35 349
3.3	6.3 *422
	16 *417
	20 362
	25 356
	35 350
4.7	3.15 *425
	10 *420
	16 369

Value	Parts No. -□□□-
4.7 $\mu$	20V 363
	25 357
	35 351
6.8	6.3 *423
	10 376
	16 370
	20 364
	25 358
	35 352
10	3.15 *426
	6.3 383
	10 377
	16 371
	20 365
	25 359
	35 353
15	3.15 390
	6.3 384

Value	Parts No. -□□□-
15 $\mu$	10V 378
	16 372
	20 366
	25 360
22	3.15 391
	6.3 385
	10 379
	16 373
	20 367
33	3.15 392
	6.3 386
	10 380
	16 374
47	3.15 393
	6.3 387
	10 381
68	3.15 394
	6.3 388
100	3.15 395

# CHIP CERAMIC CAPACITOR



220pF through 0.018μF(B) ± 10% 50WV  
 0.022μF through 0.068μF(F) <sup>+80</sup> % 50WV  
 0.1μF(F) <sup>+80</sup> % 25WV  
 -20

Parts No. 1-163-□□□-00

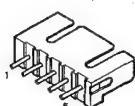
Value	Parts No. - □□□ -
100pF	—
120	—
150	—
180	—
220	001
270	002
330	003
390	004
470	005
560	006
680	007
820	008

Value	Parts No. - □□□ -
0.001μF	009
0.0012	010
0.0015	011
0.0018	012
0.0022	013
0.0027	014
0.0033	015
0.0039	016
0.0047	017
0.0056	018
0.0068	019
0.0082	020

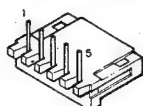
Value	Parts No. - □□□ -
0.01μF	021
0.012	022
0.015	023
0.018	024
0.022	033
0.027	—
0.033	034
0.039	—
0.047	035
0.056	—
0.068	036
0.082	—
0.1	038

# CONNECTOR

top-type receptacle

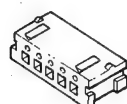


side-type receptacle



plug

housing



contact



2P	1-564-001-11
3P	002-00
4P	003-00
5P	004-00
6P	005-00
7P	006-11
8P	007-00
9P	008-00
10P	009-00
11P	010-11
12P	011-11
13P	
14P	069-00
15P	

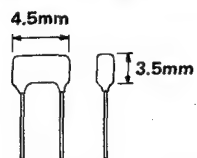
2P	1-564-012-00
3P	013-00
4P	014-00
5P	015-00
6P	016-00
7P	017-00
8P	018-11
9P	019-11
10P	020-00
11P	021-11
12P	022-00
13P	
14P	
15P	

2P	1-562-147-11
3P	148-11
4P	149-11
5P	150-11
6P	151-11
7P	152-11
8P	153-11
9P	154-11
10P	155-11
11P	156-11
12P	157-11
13P	
14P	185-00
15P	

1-564-026-21

## RESISTOR

## METAL FILM RESISTOR



± 1%, 1/8W

Parts No. 1-214-□□□-00 (10Ω through 33kΩ)

Parts No. 1-215-□□□-11 (36kΩ through 100kΩ)

Value	Parts No. -□□□-	Value	Parts No. -□□□-	Value	Parts No. -□□□-	Value	Parts No. -□□□-
10Ω	509	100Ω	533	1.0kΩ	557	10kΩ	581
11	510	110	534	1.1	558	11	582
12	511	120	535	1.2	559	12	583
13	512	130	536	1.3	560	13	584
15	513	150	537	1.5	561	15	585
16	514	160	538	1.6	562	16	586
18	515	180	539	1.8	563	18	587
20	516	200	540	2.0	564	20	588
22	517	220	541	2.2	565	22	589
24	518	240	542	2.4	566	24	590
27	519	270	543	2.7	567	27	591
30	520	300	544	3.0	568	30	592
33	521	330	545	3.3	569	33	593
36	522	360	546	3.6	570		
39	523	390	547	3.9	571	36kΩ	819
43	524	430	548	4.3	572	39	820
47	525	470	549	4.7	573	43	821
51	526	510	550	5.1	574	47	822
56	527	560	551	5.6	575	51	823
62	528	620	552	6.2	576	56	824
68	529	680	553	6.8	577	62	825
75	530	750	554	7.5	578	68	826
82	531	820	555	8.2	579	75	827
91	532	910	556	9.1	580	82	828
						91	829
						100	830

# R, CHIP

## CHIP RESISTOR



±5% 1/10W  
0Ω through 3.3MΩ

Parts No. 1-216-□□□-00

Value	Parts No. - □□□ -	Value	Parts No. - □□□ -	Value	Parts No. - □□□ -	Value	Parts No. - □□□ -	Value	Parts No. - □□□ -
0Ω	295	30	012	910	048	30	084	910	120
1Ω	—	33Ω	013	1kΩ	049	33kΩ	085	1MΩ	121
1.1	—	36	014	1.1	050	36	086	1.1	122
1.2	—	39	015	1.2	051	39	087	1.2	123
1.3	—	43	016	1.3	052	43	088	1.3	124
1.5	—	47	017	1.5	053	47	089	1.5	125
1.6	—	51	018	1.6	054	51	090	1.6	126
1.8	—	56	019	1.8	055	56	091	1.8	127
2	—	62	020	2	056	62	092	2	128
2.2	298	68	021	2.2	057	68	093	2.2	129
2.4	301	75	022	2.4	058	75	094	2.4	130
2.7	302	82	023	2.7	059	82	095	2.7	131
3	303	91	024	3	060	91	096	3	132
3.3	304	100Ω	025	3.3	061	100kΩ	097	3.3	133
3.6	305	110	026	3.6	062	110	098		
3.9	306	120	027	3.9	063	120	099		
4.3	307	130	028	4.3	064	130	100		
4.7	308	150	029	4.7	065	150	101		
5.1	297	160	030	5.1	066	160	102		
5.6	309	180	031	5.6	067	180	103		
6.2	310	200	032	6.2	068	200	104		
6.8	311	220	033	6.8	069	220	105		
7.5	312	240	034	7.5	070	240kΩ	106		
8.2	313	270	035	8.2	071	270	107		
9.1	314	300	036	9.1	072	300	108		
10Ω	001	330	037	10kΩ	073	330	109		
11	002	360	038	11	074	360	110		
12	003	390	039	12	075	390	111		
13	004	430	040	13	076	430	112		
15	005	470	041	15	077	470	113		
16	006	510	042	16	078	510	114		
18	007	560	043	18	079	560	115		
20	008	620	044	20	080	620	116		
22	009	680	045	22	081	680	117		
24	010	750	046	24	082	750	118		
27	011	820	047	27	083	820	119		

Ref. No.	Part No.	Description
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**AT-42 BOARD**

A-7513-400-A	MOUNTED CIRCUIT BOARD	"AT-42"
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C14	1-163-117-00	CERAMIC CHIP 100PF 5% 50V
C17	1-163-125-00	CERAMIC CHIP 220PF 5% 50V
C18	1-125-393-11	DOUBLE LAYERS 0.47F 5.5V
C20	1-163-101-00	CERAMIC CHIP 22PF 5% 50V
C23	1-163-101-00	CERAMIC CHIP 22PF 5% 50V

C25	1-163-105-00	CERAMIC CHIP 33PF 5% 50V
C26	1-163-105-00	CERAMIC CHIP 33PF 5% 50V
C27	1-163-141-00	CERAMIC CHIP 0.001 5% 50V

CN1	1-506-731-21	RECEPTACLE, 40P MALE
CN2	1-506-467-11	RECEPTACLE, 2P MALE

D1	8-719-100-05	1S2837
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IC1	1-807-412-11	BH1219: SONY Ser No. 10001~10050 (J) Ser No. 10001~10140 (UC) Ser No. 10001~10010 (EK)
	1-807-412-12	BH1219A: SONY Ser No. 10051~ (J) Ser No. 10141~ (UC) Ser No. 10011~ (EK)

IC2	1-807-413-11	BH1220: SONY
IC3	1-807-414-11	BH1221: SONY
IC4	8-759-200-82	TC4069UBF: TOSHIBA
IC5	8-759-906-54	TL064CNS: TI

IC6	8-759-200-99	TC4051BF: TOSHIBA
IC7	8-759-101-12	μPC311G2: NEC
IC8	8-759-918-65	TL7700CPS: TI
IC9	8-759-204-79	TC40H241F: TOSHIBA
IC10	8-759-906-53	TL062CPS: TI

IC11	8-759-400-89	MN1237AD: MATSUSHITA
IC12	8-741-117-90	BX1179: SONY
IC13	8-759-200-82	TC4069UBF: TOSHIBA
IC14	8-759-303-52	HD63P05Y0: HITACHI
IC15	8-759-771-09	27C64-P5V30: FUJITSU

Ref. No.	Part No.	Description
Q1	8-729-100-66	2SC1623
Q2	8-729-100-76	2SA812
Q3	8-729-100-66	2SC1623
Q4	8-729-100-66	2SC1623
Q5	8-729-100-66	2SC1623

Q6	8-729-100-76	2SA812
Q7	8-729-100-76	2SA812
Q8	8-729-109-44	2SK94

R64	1-249-429-11	CARBON 10K 5% 1/6W
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RP3	1-231-387-00	25K
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RV1	1-228-472-00	METAL 2K
RV2	1-228-474-00	METAL 10K

S1	1-554-599-00	DIP 2P "CHECK FP INH"
S2	1-570-374-00	SLIDE "MEMORY RESET"

X1	1-567-192-11	4MHz
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**BI-6, CN-119, CN-143, DR-40**

Ref. No. Part No. Description

**BI-6 BOARD**

A-7520-251-A MOUNTED CIRCUIT BOARD

"BI-6"

C7 1-163-125-00 CERAMIC CHIP 220PF 5% 50V

Q1 8-729-175-73 2SC2757

**CN-119 BOARD**

1-618-264-11 PRINTED CIRCUIT BOARD

"CN-119"

**CN-143 BOARD**

1-618-183-11 PRINTED CIRCUIT BOARD

"CN-143"

1-506-760-11 RECEPTACLE, 30P MALE

Ref. No. Part No. Description

**DR-40 BOARD**

A-7513-387-A MOUNTED CIRCUIT BOARD

"DR-40"

C2 1-163-117-00 CERAMIC CHIP 100PF 5% 50V

C3 1-163-117-00 CERAMIC CHIP 100PF 5% 50V

C4 1-163-117-00 CERAMIC CHIP 100PF 5% 50V

C5 1-163-117-00 CERAMIC CHIP 100PF 5% 50V

C6 1-163-117-00 CERAMIC CHIP 100PF 5% 50V

C7 1-163-117-00 CERAMIC CHIP 100PF 5% 50V

C36 1-107-206-00 MICA 15PF 5% 500V

CN1 1-506-474-11 RECEPTACLE, 9P MALE

CN2 1-563-238-11 RECEPTACLE, 15P FEMALE

CN3 1-563-292-11 RECEPTACLE, 30P MALE

D1 8-719-100-05 1S2837

D2 8-719-100-05 1S2837

D3 8-719-100-05 1S2837

D4 8-719-100-05 1S2837

D5 8-719-200-29 11DQ04

D6 8-719-100-03 1S2835

D7 8-719-100-03 1S2835

IC1 8-759-000-26 MMH0026CP1: MOTOROLA

IC2 8-759-000-26 MMH0026CP1: MOTOROLA

IC3 8-759-000-26 MMH0026CP1: MOTOROLA

IC4 8-752-001-10 CX20011: SONY

IC5 8-752-018-00 CX20180: SONY

IC6 8-759-278-12 TA78L012AP: TOSHIBA

IC8 8-759-204-98 TC74HC08F: TOSHIBA

Ref. No. Part No. Description

**EN-41/41P BOARD**

A-7513-395-A MOUNTED CIRCUIT BOARD  
"EN-41" (J, UC)  
A-7513-396-A MOUNTED CIRCUIT BOARD  
"EN-41P" (EK)

C9	1-107-042-00	MICA 2.2PF $\pm$ 0.5PF 500V (J, UC)
	1-107-049-00	MICA 8.2PF $\pm$ 0.5PF 500V (EK)
C10	1-107-040-00	MICA 1.5PF $\pm$ 0.5PF 500V
C19	1-161-461-00	CERAMIC 150PF 5% 50V (J, UC)
	1-161-457-00	CERAMIC 68PF 5% 50V (EK)
C20	1-161-477-00	CERAMIC 56PF 5% 50V (J, UC)
	1-107-075-00	MICA 39PF 5% 50V (EK)
C26	1-107-043-00	MICA 2.7PF $\pm$ 0.5PF 500V
C27	1-107-043-00	MICA 2.7PF $\pm$ 0.5PF 500V
C28	1-107-043-00	MICA 2.7PF $\pm$ 0.5PF 500V
C29	1-163-105-00	CERAMIC CHIP 33PF 5% 50V (J, UC)
C30	1-163-105-00	CERAMIC CHIP 33PF 5% 50V (J, UC)
C33	1-163-109-00	CERAMIC CHIP 47PF 5% 50V (J, UC)
C34	1-163-109-00	CERAMIC CHIP 47PF 5% 50V (J, UC)
C41	1-107-042-00	MICA 2.2PF $\pm$ 0.5PF 500V
C51	1-161-480-00	CERAMIC 91PF 5% 50V
C52	1-161-459-00	CERAMIC 100PF 5% 50V (J, UC)
	1-161-855-00	CERAMIC 47PF 5% 50V (EK)
C53	1-107-047-00	MICA 5.6PF $\pm$ 0.5PF 500V (J, UC)
	1-107-206-00	MICA 15PF 5% 500V (EK)
C54	1-107-075-00	MICA 39PF 5% 50V (J, UC)
	1-161-479-00	CERAMIC 75PF 5% 50V (EK)
C69	1-107-211-00	MICA 24PF 5% 500V (J, UC)
	1-161-459-00	CERAMIC 100PF 5% 50V (EK)
C70	1-107-211-00	MICA 24PF 5% 500V (J, UC)
	1-161-465-00	CERAMIC 330PF 5% 50V (EK)
C71	1-161-480-00	CERAMIC 91PF 5% 50V (J, UC)
C74	1-124-289-00	ELECT 33 20% 10V
C77	1-107-159-00	MICA 33PF 5% 500V (J, UC)
	1-107-202-00	MICA 10PF 5% 500V (J, UC)
	1-107-209-00	MICA 20PF 5% 500V (J, UC)
C78	1-161-468-00	CERAMIC 560PF 5% 50V (J, UC)
	1-161-459-00	CERAMIC 100PF 5% 50V (EK)
C79	1-161-461-00	CERAMIC 150PF 5% 50V (J, UC)
	1-161-465-00	CERAMIC 330PF 5% 50V (EK)
C82	1-124-289-00	ELECT 33 20% 10V
C83	1-124-584-00	ELECT 100 20% 10V
C84	1-124-584-00	ELECT 100 20% 10V
C94	1-124-292-00	ELECT 33 20% 6.3V
C95	1-163-105-00	CERAMIC CHIP 33PF 5% 50V
C98	1-107-042-00	MICA 2.2PF $\pm$ 0.5PF 500V

Ref. No. Part No. Description

C99	1-161-855-00	CERAMIC 47PF 5% 50V Ser No. 10001~10020 (J, UC) Ser No. 10001~10010 (EK)
	1-163-109-00	CERAMIC CHIP 47PF 5% 50V Ser No. 10021~ (J, UC) Ser No. 10011~ (EK)
C100	1-163-097-00	CERAMIC CHIP 15PF 5% 50V
C103	1-163-125-00	CERAMIC CHIP 220PF 5% 50V Ser No. 10021~ (J, UC) Ser No. 10001~ (EK)

CN1	1-506-730-11	RECEPTACLE, 40P MALE
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CV1	1-141-298-11	TRIMMER 10PF
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D1	8-719-101-23	1SS123 (J, UC)
D2	8-719-914-11	HZ4ALL
D3	8-719-101-23	1SS123

DL1	1-415-482-11	790 $\pm$ 10nS (J, UC)
	1-415-483-11	338 $\pm$ 7nS (EK)
DL2	1-415-290-00	0.41 $\mu$ S $\pm$ 10nS (J, UC)

FL1	1-235-161-00	BPF 3.58MHz (J, UC)
	1-235-181-00	BPF 4.43MHz (EK)

IC1	8-759-200-81	TC4053BF: TOSHIBA
IC2	1-807-421-11	BH1216: SONY
IC3	8-741-135-60	BX1356: SONY
IC4	8-759-906-59	CX22017: SONY
IC5	8-759-200-79	TC4049BF: TOSHIBA

IC6	8-759-911-77	CX7968A: SONY
IC7	1-807-421-11	BH1216: SONY
IC8	1-807-419-11	BH1214: SONY
IC9	1-807-418-11	BH1213: SONY
IC10	1-807-420-11	BH1215: SONY

IC11	1-807-423-11	BH1218: SONY
IC12	8-759-700-07	NJM2903M: JRC
IC13	8-759-200-79	TC4049BF: TOSHIBA

L1	1-408-417-21	MICRO 47
L2	1-408-417-21	MICRO 47
L3	1-408-417-21	MICRO 47
L4	1-408-849-00	MICRO 330 (J, UC)
	1-408-419-00	MICRO 68 (EK)
L5	1-408-145-00	COIL 19 (J, UC)
L6	1-408-851-00	MICRO 560 (J, UC)
	1-408-419-00	MICRO 68 (EK)



Ref. No.	Part No.	Description
LV1	1-408-844-00	22
LV2	1-408-845-00	100 (J, UC)
	1-410-619-00	220 (EK)
Q1	8-729-100-76	2SA812
Q2	8-729-100-76	2SA812
Q3	8-729-100-76	2SA812
Q4	8-729-100-66	2SC1623
Q5	8-729-100-66	2SC1623
Q6	8-729-100-66	2SC1623
Q7	8-729-100-66	2SC1623
Q8	8-729-100-76	2SA812
Q9	8-729-100-66	2SC1623
Q10	8-729-100-66	2SC1623
Q11	8-729-100-66	2SC1623
Q12	8-729-100-66	2SC1623
Q13	8-729-100-66	2SC1623
Q14	8-729-100-66	2SC1623
Q15	8-729-100-76	2SA812
Q16	8-729-100-66	2SC1623
Q17	8-729-100-66	2SC1623
Q18	8-729-100-66	2SC1623
Q19	8-729-100-66	2SC1623
Q20	8-729-100-76	2SA812
Q21	8-729-100-66	2SC1623
Q22	8-729-100-66	2SC1623 (J, UC)
Q23	8-729-175-73	2SC2757 (J, UC)
Q24	8-729-100-66	2SC1623 (J, UC)
Q25	8-729-122-63	2SA1226
Q26	8-729-100-66	2SC1623
Q27	8-729-175-73	2SC2757
Q28	8-729-100-66	2SC1623
Q29	8-729-122-63	2SA1226
Q30	8-729-100-76	2SA812
Q31	8-729-100-66	2SC1623
Q32	8-729-100-76	2SA812
Q33	8-729-100-76	2SA812
Q34	8-729-100-66	2SC1623
R66	1-246-473-00	CARBON 1K 1% 1/4W
R159	1-215-393-00	METAL FILM 68 1% 1/6W
RP1	1-235-528-12	RESISTOR BLOCK
RP2	1-235-528-12	RESISTOR BLOCK
RP3	1-235-526-11	RESISTOR BLOCK
RP4	1-235-527-11	RESISTOR BLOCK
RP5	1-235-529-11	RESISTOR BLOCK (J, UC)
	1-235-526-11	RESISTOR BLOCK (EK)
RP6	1-235-530-11	RESISTOR BLOCK
RP7	1-235-527-11	RESISTOR BLOCK (EK)

Ref. No.	Part No.	Description
RV1	1-228-457-00	METAL 2KQ (J, UC)
RV2	1-228-459-00	METAL 10K
RV3	1-228-459-00	METAL 10K (J, UC)
RV4	1-228-456-00	METAL 1K
RV5	1-228-456-00	METAL 1K
RV6	1-228-457-00	METAL 2K
RV7	1-228-457-00	METAL 2K
RV8	1-228-457-00	METAL 2K
RV9	1-228-459-00	METAL 10K (J, UC)
RV10	1-228-457-00	METAL 2K (J, UC)
RV11	1-228-459-00	METAL 10K
RV12	1-228-456-00	METAL 1K
RV13	1-228-473-00	METAL 5K
RV14	1-228-457-00	METAL 2K
RV15	1-228-459-00	METAL 10K
RV16	1-228-460-00	METAL 20K (J, UC)
RV17	1-228-454-00	METAL 200
RV18	1-228-454-00	METAL 200
RV19	1-228-473-00	METAL 5K
RV20	1-228-457-00	METAL 2K (J, UC)
	1-228-456-00	METAL 1K (EK)
RV21	1-228-473-00	METAL 5K
RV22	1-228-457-00	METAL 2K
RV23	1-228-457-00	METAL 2K
S1	1-554-076-00	SLIDE "I/R-Y"
S2	1-554-076-00	SLIDE "Q/B-Y"

Ref. No. Part No. Description

**HN-46 BOARD**

A-7513-401-A MOUNTED CIRCUIT BOARD

"HN-46"

CN1 1-563-239-21 RECEPTACLE, 40P FEMALE  
 CN2 1-563-239-11 RECEPTACLE, 40P FEMALE  
 CN3 1-563-239-11 RECEPTACLE, 40P FEMALE  
 CN4 1-563-239-11 RECEPTACLE, 40P FEMALE  
 CN5 1-563-239-11 RECEPTACLE, 40P FEMALE

CN6 1-563-239-11 RECEPTACLE, 40P FEMALE  
 CN7 1-563-239-21 RECEPTACLE, 40P FEMALE  
 CN8 1-506-635-11 RECEPTACLE, 12P MALE

1-563-120-11 PLUG, HOUSING 12P  
 1-564-681-11 PLUG, CONTACT  
 1-563-115-11 INDEX PIN

CN9 1-506-476-11 RECEPTACLE, 11P MALE  
 1-562-156-11 PLUG, HOUSING 11P  
 1-564-681-11 PLUG, CONTACT  
 1-563-115-11 INDEX PIN

CN10 1-506-482-11 RECEPTACLE, 3P MALE

CN11 1-506-483-21 RECEPTACLE, 4P MALE  
 CN12 1-506-470-11 RECEPTACLE, 5P MALE  
 CN13 1-506-489-11 RECEPTACLE, 10P MALE  
 1-564-681-11 PLUG, CONTACT  
 CN14 1-506-469-11 RECEPTACLE, 4P MALE  
 CN15 1-506-477-11 RECEPTACLE, 12P MALE

CN16 1-506-484-11 RECEPTACLE, 5P MALE  
 CN17 1-506-470-11 RECEPTACLE, 5P MALE  
 CN18 1-506-467-11 RECEPTACLE, 2P MALE  
 CN20 1-506-639-11 RECEPTACLE, 20P MALE  
 CN21 1-506-492-11 RECEPTACLE, 13P MALE

CN22 1-506-485-11 RECEPTACLE, 6P MALE  
 CN23 1-506-483-11 RECEPTACLE, 4P MALE  
 CN24 1-506-468-11 RECEPTACLE, 3P MALE  
 CN25 1-506-470-11 RECEPTACLE, 5P MALE  
 CN27 1-506-638-11 RECEPTACLE, 18P MALE  
 1-563-123-11 PLUG, HOUSING 18P  
 1-564-681-11 PLUG, CONTACT  
 1-563-115-11 INDEX PIN

D1 8-719-815-55 1S1555  
 D2 8-719-815-55 1S1555  
 D3 8-719-815-55 1S1555  
 D4 8-719-815-55 1S1555

IC1 8-759-403-48 AN6701S: MATSUSHITA

Ref. No. Part No. Description

**IE-15/15P BOARD**A-7513-391-A MOUNTED CIRCUIT BOARD  
"IE-15" (J, UC)A-7513-392-A MOUNTED CIRCUIT BOARD  
"IE-15P" (EK)

C8 1-163-141-00 CERAMIC CHIP 0.001 5% 50V  
 C9 1-163-141-00 CERAMIC CHIP 0.001 5% 50V  
 C10 1-107-047-00 MICA 5.6PF  $\pm$ 0.5PF 500V  
 C16 1-107-159-00 MICA 33PF 5% 500V  
 C19 1-107-159-00 MICA 33PF 5% 500V

C20 1-107-208-00 MICA 18PF 5% 500V  
 C26 1-107-202-00 MICA 10PF 5% 500V  
 C31 1-107-159-00 MICA 33PF 5% 500V  
 C34 1-107-159-00 MICA 33PF 5% 500V  
 C37 1-107-208-00 MICA 18PF 5% 500V

C42 1-161-896-11 CERAMIC 0.22 50V  
 C43 1-161-896-11 CERAMIC 0.22 50V  
 C44 1-124-270-11 ELECT 0.47 20% 50V  
 C45 1-124-270-11 ELECT 0.47 20% 50V  
 C46 1-161-896-11 CERAMIC 0.22 50V

C47 1-124-270-11 ELECT 0.47 20% 50V  
 C48 1-124-270-11 ELECT 0.47 20% 50V  
 C57 1-161-459-00 CERAMIC 100PF 5% 50V  
 C72 1-161-480-00 CERAMIC 91PF 5% 50V  
 C76 1-161-896-11 CERAMIC 0.22 50V

C79 1-107-210-00 MICA 22PF 5% 500V  
 C84 1-130-471-00 MYLAR 0.001 5% 50V  
 C85 1-130-471-00 MYLAR 0.001 5% 50V  
 C86 1-130-471-00 MYLAR 0.001 5% 50V  
 C87 1-130-471-00 MYLAR 0.001 5% 50V  
 C92 1-163-251-00 CERAMIC CHIP 100PF 5% 50V

CN1 1-506-730-11 RECEPTACLE, 40P MALE

CV1 1-141-301-11 TRIMMER 35PF  
 CV2 1-141-291-11 TRIMMER 20PF  
 CV3 1-141-291-11 TRIMMER 20PF

D1 8-719-101-23 1S123  
 D2 8-719-100-03 1S2835  
 D3 8-719-100-03 1S2835  
 D4 8-719-101-97 1S97-1  
 D5 8-719-101-97 1S97-1

D6 8-719-815-59 1S1555-S  
 D7 8-719-100-03 1S2835

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
DL1	1-415-492-11	LINE 1 63.525 $\mu$ S $\pm$ 10nS (J, UC) LINE 2 63.560 $\mu$ S $\pm$ 20nS (J, UC)	Q26	8-729-109-44	2SK94
	1-415-493-11	LINE 1 63.970 $\mu$ S $\pm$ 10nS (EK) LINE 2 64.005 $\mu$ S $\pm$ 20nS (EK)	Q27	8-729-122-63	2SA1226
DL2	1-415-485-11	120nS $\pm$ 6nS	Q28	8-729-122-63	2SA1226
			Q29	8-729-109-44	2SK94
			Q30	8-729-109-44	2SK94
IC1	8-759-700-95	NJM1496M: JRC	Q31	8-729-122-63	2SA1226
IC2	1-807-416-11	BH1211: SONY	Q32	8-729-122-63	2SA1226
IC3	1-807-416-11	BH1211: SONY	Q33	8-729-122-63	2SA1226
IC4	8-759-906-53	TL062CPS: TI	Q34	8-729-122-63	2SA1226
IC5	1-807-422-11	BH1217: SONY	Q35	8-729-122-63	2SA1226
			Q36	8-729-122-63	2SA1226
IC6	8-759-906-53	TL062CPS: TI	Q37	8-729-175-73	2SC2757
IC7	8-759-700-95	NJM1496M: JRC	Q38	8-729-109-44	2SK94
IC8	8-759-200-90	TC4538BF: TOSHIBA	Q39	8-729-109-44	2SK94
IC9	8-759-200-90	TC4538BF: TOSHIBA	Q40	8-729-175-73	2SC2757
IC10	8-759-200-68	TC4011BF: TOSHIBA	Q41	8-729-175-73	2SC2757
			Q42	8-729-175-73	2SC2757
L1	1-408-417-21	MICRO 47	Q43	8-729-175-73	2SC2757
L4	1-408-421-00	MICRO 100	Q44	8-729-109-44	2SK94
L5	1-408-170-00	MICRO 18	Q45	8-729-109-44	2SK94
L6	1-408-170-00	MICRO 18	Q46	8-729-175-73	2SC2757
L7	1-408-421-00	MICRO 100	Q47	8-729-175-73	2SC2757
			Q48	8-729-122-63	2SA1226
			Q49	8-729-122-63	2SA1226
			Q50	8-729-122-63	2SA1226
LV1	1-408-845-00	MICRO 100	Q51	8-729-122-63	2SA1226
			Q52	8-729-122-63	2SA1226
Q1	8-729-122-63	2SA1226	Q53	8-729-175-73	2SC2757
Q2	8-729-175-73	2SC2757	Q54	8-729-175-73	2SC2757
Q3	8-729-122-63	2SA1226	Q55	8-729-175-73	2SC2757
Q4	8-729-175-73	2SC2757	Q56	8-729-122-63	2SA1226
Q5	8-729-175-73	2SC2757	Q57	8-729-122-63	2SA1226
Q6	8-729-109-44	2SK94	RV1	1-228-457-00	METAL 2K
Q7	8-729-175-73	2SC2757	RV2	1-228-455-00	METAL 500
Q8	8-729-175-73	2SC2757	RV3	1-228-456-00	METAL 1K
Q9	8-729-175-73	2SC2757	RV4	1-228-470-00	METAL 500
Q10	8-729-175-73	2SC2757	RV5	1-228-474-00	METAL 10K
Q11	8-729-175-73	2SC2757	RV6	1-228-458-00	METAL 5K
Q12	8-729-100-66	2SC1623	RV7	1-228-472-00	METAL 2K
Q13	8-729-175-73	2SC2757	RV8	1-228-470-00	METAL 500
Q14	8-729-122-63	2SA1226			
Q15	8-729-175-73	2SC2757			
Q16	8-729-175-73	2SC2757	S1	1-570-610-11	TOGGLE "DTL"
Q17	8-729-175-73	2SC2757			
Q18	8-729-109-44	2SK94			
Q19	8-729-175-73	2SC2757			
Q20	8-729-175-73	2SC2757			
Q21	8-729-175-73	2SC2757			
Q22	8-729-175-73	2SC2757			
Q23	8-729-175-73	2SC2757			
Q24	8-729-122-63	2SA1226			
Q25	8-729-109-44	2SK94			

## MP-19 BOARD

RV1 1-228-450-00 WIREWOUND 10K

Ref. No. Part No. Description

# PA-51 BOARD

A-7513-388-A MOUNTED CIRCUIT BOARD

"PA-51"

C3 1-163-101-00 CERAMIC CHIP 22PF 5% 50V  
C4 1-163-231-00 CERAMIC CHIP 15PF 5% 50V  
C6 1-163-101-00 CERAMIC CHIP 22PF 5% 50V  
C9 1-163-101-00 CERAMIC CHIP 22PF 5% 50V  
C11 1-163-101-00 CERAMIC CHIP 22PF 5% 50V  
C12 1-124-584-00 ELECT 100 20% 10V

C15 1-163-101-00 CERAMIC CHIP 22PF 5% 50V  
C17 1-231-099-00 CERAMIC CHIP 15PF 5% 50V  
C20 1-163-101-00 CERAMIC CHIP 22PF 5% 50V  
C22 1-124-584-00 ELECT 100 20% 10V  
C25 1-163-101-00 CERAMIC CHIP 22PF 5% 50V

C27 1-163-231-00 CERAMIC CHIP 15PF 5% 50V  
C30 1-163-101-00 CERAMIC CHIP 22PF 5% 50V  
C32 1-124-584-00 ELECT 100 20% 10V  
C35 1-101-361-00 CERAMIC 150P 10% 50V  
C36 1-102-973-00 CERAMIC 100P 10% 50V  
C37 1-102-973-00 CERAMIC 100P 10% 50V

CN1 1-506-471-11 RECEPTACLE, 6P MALE  
CN2 1-506-478-11 RECEPTACLE, 13P MALE  
CN3 1-563-238-11 RECEPTACLE, 15P FEMALE  
CN4 1-506-467-11 RECEPTACLE, 2P MALE  
CN5 1-506-467-11 RECEPTACLE, 2P MALE  
CN6 1-506-467-11 RECEPTACLE, 2P MALE

CV1 1-141-341-11 TRIMMER 10PF  
CV2 1-141-341-11 TRIMMER 10PF  
CV3 1-141-341-11 TRIMMER 10PF

Q1 8-729-122-63 2SA1226  
Q2 8-769-401-68 3SK163-2  
Q3 8-729-100-66 2SC1623  
Q4 8-729-122-63 2SA1226  
Q5 8-769-401-68 3SK163-2

Q6 8-729-100-66 2SC1623  
Q7 8-729-122-63 2SA1226  
Q8 8-769-401-68 3SK163-2  
Q9 8-729-100-66 2SC1623  
Q10 8-729-122-63 2SA1226

Q11 8-769-401-68 3SK163-2  
Q12 8-729-100-66 2SC1623  
Q13 8-729-122-63 2SA1226  
Q14 8-769-401-68 3SK163-2  
Q15 8-729-100-66 2SC1623

Ref. No. Part No. Description

Q16 8-729-175-73 2SC2757  
Q17 8-729-100-66 2SC1623  
Q18 8-729-175-73 2SC2757  
Q19 8-729-100-66 2SC1623  
Q20 8-729-175-73 2SC2757

Q21 8-729-122-63 2SA1226  
Q22 8-769-401-68 3SK163-2  
Q23 8-729-100-66 2SC1623  
Q24 8-729-122-63 2SA1226  
Q25 8-769-401-68 3SK163-2

Q26 8-729-100-66 2SC1623  
Q27 8-729-122-63 2SA1226  
Q28 8-769-401-68 3SK163-2  
Q29 8-729-100-66 2SC1623  
Q30 8-729-175-73 2SC2757

Q31 8-729-100-66 2SC1623  
Q32 8-729-175-73 2SC2757  
Q33 8-729-100-66 2SC1623  
Q34 8-729-175-73 2SC2757  
Q35 8-729-122-63 2SA1226

Q36 8-769-401-68 3SK163-2  
Q37 8-729-100-66 2SC1623  
Q38 8-729-122-63 2SA1226  
Q39 8-769-401-68 3SK163-2  
Q40 8-729-100-66 2SC1623

Q41 8-729-122-63 2SA1226  
Q42 8-769-401-68 3SK163-2  
Q43 8-729-100-66 2SC1623  
Q44 8-729-175-73 2SC2757  
Q45 8-729-100-66 2SC1623

Q46 8-729-175-73 2SC2757  
Q47 8-729-100-66 2SC1623  
Q48 8-729-175-73 2SC2757

R82 1-215-482-00 METAL 360K 1% 1/6W  
R83 1-215-483-00 METAL 390K 1% 1/6W  
R84 1-215-470-00 METAL 110K 1% 1/6W

Ref. No. Part No. Description

**PR-78 BOARD**

A-7513-394-A MOUNTED CIRCUIT BOARD

"PR-78"

C7	1-124-271-00	ELECT (NONPOLAR) 1 20%	50V
C8	1-161-892-21	CERAMIC 0.047 50V	
C9	1-124-283-00	ELECT (NONPOLAR) 4.7 20%	16V
C16	1-107-206-00	MICA 15PF 5% 500V	
C19	1-124-270-11	ELECT (NONPOLAR) 0.47 20%	50V
C20	1-124-270-11	ELECT (NONPOLAR) 0.47 20%	50V
C21	1-161-896-11	CERAMIC 0.22 50V	
C24	1-124-271-00	ELECT (NONPOLAR) 1 20%	50V
C25	1-161-892-21	CERAMIC 0.047 50V	
C26	1-124-283-00	ELECT (NONPOLAR) 4.7 20%	16V
C29	1-124-270-11	ELECT (NONPOLAR) 0.47 20%	50V
C34	1-107-206-00	MICA 15PF 5% 500V	
C41	1-124-270-11	ELECT (NONPOLAR) 0.47 20%	50V
C42	1-124-270-11	ELECT (NONPOLAR) 0.47 20%	50V
C45	1-124-271-00	ELECT (NONPOLAR) 1 20%	50V
C46	1-161-892-21	CERAMIC 0.047 50V	
C47	1-124-283-00	ELECT (NONPOLAR) 4.7 20%	16V
C55	1-107-206-00	MICA 15PF 5% 500V	
C60	1-124-270-11	ELECT (NONPOLAR) 0.47 20%	50V
C62	1-124-270-11	ELECT (NONPOLAR) 0.47 20%	50V
C74	1-161-459-00	CERAMIC 100PF 5% 50V	
C75	1-161-459-00	CERAMIC 100PF 5% 50V	
C76	1-161-459-00	CERAMIC 100PF 5% 50V	
C77	1-124-584-00	ELECT 100 20% 10V	
C78	1-161-477-00	CERAMIC 56PF 5% 50V	
C79	1-131-377-00	TANTALUM 10 10% 10V	
C81	1-161-459-00	CERAMIC 100PF 5% 50V	
C82	1-161-459-00	CERAMIC 100PF 5% 50V	
C83	1-161-459-00	CERAMIC 100PF 5% 50V	

Ref. No. Part No. Description

CN1 1-506-730-11 RECEPTACLE, 40P MALE

CV1	1-141-301-11	TRIMMER 35PF
CV2	1-141-301-11	TRIMMER 35PF
CV3	1-141-301-11	TRIMMER 35PF

D1	8-719-101-23	1SS123
D2	8-719-101-97	1SS97-1
D3	8-719-101-23	1SS123
D4	8-719-101-97	1SS97-1
D5	8-719-815-59	1S1555-S

D6	8-719-815-59	1S1555-S
D7	8-719-815-59	1S1555-S
D8	8-719-815-59	1S1555-S
D9	8-719-910-72	HZ7A2L
D10	8-719-101-23	1SS123

D11	8-719-815-59	1S1555-S
D12	8-719-101-97	1SS97-1
D13	8-719-101-23	1SS123
D14	8-719-101-97	1SS97-1
D15	8-719-815-59	1S1555-S

D16	8-719-815-59	1S1555-S
D17	8-719-815-59	1S1555-S
D18	8-719-815-59	1S1555-S
D19	8-719-910-72	HZ7A2L
D20	8-719-101-23	1SS123

D21	8-719-101-97	1SS97-1
D22	8-719-101-97	1SS97-1
D23	8-719-101-23	1SS123
D24	8-719-101-97	1SS97-1
D25	8-719-815-59	1S1555-S

D26	8-719-815-59	1S1555-S
D27	8-719-815-59	1S1555-S
D28	8-719-815-59	1S1555-S
D29	8-719-910-72	HZ7A2L
D30	8-719-100-03	1S2835

D31	8-719-100-05	1S2837
D32	8-719-100-03	1S2835

Ref. No.	Part No.	Description
DL1	1-415-489-11	160nS $\pm$ 8nS
DL2	1-415-489-11	160nS $\pm$ 8nS
DL3	1-415-489-11	160nS $\pm$ 8nS
IC1	1-807-422-11	BH1217: SONY
IC2	8-759-906-53	TL062CPS: TI
IC3	8-759-906-53	TL062CPS: TI
IC4	1-807-422-11	BH1217: SONY
IC5	8-759-906-53	TL062CPS: TI
IC6	1-807-422-11	BH1217: SONY
IC7	8-759-906-53	TL062CPS: TI
IC8	8-759-906-53	TL062CPS: TI
IC9	1-807-422-11	BH1217: SONY
IC10	1-807-422-11	BH1217: SONY
IC11	8-759-906-53	TL062CPS: TI
IC12	8-759-906-53	TL062CPS: TI
IC13	8-807-422-11	BH1217: SONY
IC14	8-759-906-53	TL062CPS: TI
IC15	8-759-200-81	TC4053BF: TOSHIBA

L2	1-408-417-21	MICRO 47
L3	1-408-417-21	MICRO 47
L4	1-408-413-00	MICRO 22

Q1	8-729-175-73	2SC2757
Q2	8-729-122-63	2SA1226
Q3	8-729-109-44	2SK94
Q4	8-729-175-73	2SC2757
Q5	8-729-175-73	2SC2757
Q6	8-729-122-63	2SA1226
Q7	8-729-122-63	2SA1226
Q8	8-729-122-63	2SA1226
Q9	8-729-122-63	2SA1226
Q10	8-729-175-73	2SC2757
Q11	8-729-175-73	2SC2757
Q12	8-729-175-73	2SC2757
Q13	8-729-175-73	2SC2757
Q14	8-729-109-44	2SK94
Q15	8-729-122-63	2SA1226

Q16	8-729-175-73	2SC2757
Q17	8-729-122-63	2SA1226
Q18	8-729-122-63	2SA1226
Q19	8-729-109-44	2SK94
Q20	8-729-175-73	2SC2757
Q21	8-729-175-73	2SC2757
Q22	8-729-122-63	2SA1226
Q23	8-729-122-63	2SA1226
Q24	8-729-122-63	2SA1226
Q25	8-729-122-63	2SA1226
Q26	8-729-175-73	2SC2757
Q27	8-729-175-73	2SC2757
Q28	8-729-175-73	2SC2757
Q29	8-729-175-73	2SC2757
Q30	8-729-109-44	2SK94
Q31	8-729-175-73	2SC2757
Q32	8-729-122-63	2SA1226
Q33	8-729-109-44	2SK94
Q34	8-729-175-73	2SC2757
Q35	8-729-175-73	2SC2757
Q36	8-729-175-73	2SC2757
Q37	8-729-122-63	2SA1226
Q38	8-729-122-63	2SA1226
Q39	8-729-122-63	2SA1226
Q40	8-729-122-63	2SA1226
Q41	8-729-122-63	2SA1226
Q42	8-729-175-73	2SC2757
Q43	8-729-175-73	2SC2757
Q44	8-729-175-73	2SC2757
Q45	8-729-175-73	2SC2757
Q46	8-729-109-44	2SK94
Q47	8-729-122-63	2SA1226
Q48	8-729-175-73	2SC2757
Q49	8-729-175-73	2SC2757
Q50	8-729-175-73	2SC2757
Q51	8-729-175-73	2SC2757
Q52	8-729-175-73	2SC2757
Q53	8-729-175-73	2SC2757
Q54	8-729-175-73	2SC2757
Q55	8-729-175-73	2SC2757
Q56	8-729-175-73	2SC2757
Q57	8-729-175-73	2SC2757
Q58	8-729-175-73	2SC2757
Q59	8-729-175-73	2SC2757
Q60	8-729-175-73	2SC2757
Q61	8-729-175-73	2SC2757
Q62	8-729-364-12	2SC641K
Q63	8-729-364-12	2SC641K
Q64	8-729-175-73	2SC2757
Q65	8-729-175-73	2SC2757

Ref. No. Part No. Description

## RG-14 BOARD

A-7513-386-A MOUNTED CIRCUIT BOARD

"RG-14"

C3 1-107-019-00 MICA 1PF  $\pm$ 0.5PF 500V  
C4 1-107-042-00 MICA 2.2PF  $\pm$ 0.5PF 500V

CN1 1-506-467-11 RECEPTACLE, 2P MALE  
1-564-681-11 PLUG, CONTACT  
CN2 1-506-472-11 RECEPTACLE, 7P MALE  
CN3 1-506-476-11 RECEPTACLE, 11P MALE  
CN4 1-506-467-11 RECEPTACLE, 2P MALE  
1-564-681-11 PLUG, CONTACT

IC1 8-759-200-79 TC4049BF: TOSHIBA  
IC2 8-741-135-60 BX1356: SONY  
IC3 8-759-200-81 TC4053BF: TOSHIBA

Q1 8-729-100-76 2SA812  
Q2 8-729-100-76 2SA812  
Q3 8-729-100-66 2SC1623

RV1 1-228-455-00 METAL 500

S1 1-570-609-11 TOGGLE "R/OFF/B"  
S2 1-570-609-11 TOGGLE "G/OFF/-G"  
S3 1-570-608-11 TOGGLE "ENC/REG"

Ref. No. Part No. Description

## SG-117/117P BOARD

A-7513-398-A MOUNTED CIRCUIT BOARD

"SG-117" (J, UC)

A-7513-399-A MOUNTED CIRCUIT BOARD

"SG-117P" (EK)

C5 1-163-141-00 CERAMIC CHIP 0.001 5% 50V  
C8 1-161-466-00 CERAMIC 390PF 5% 50V (J, UC)  
1-161-459-00 CERAMIC 100PF 5% 50V (EK)  
C11 1-163-093-00 CERAMIC CHIP 10PF 5% 50V  
C19 1-163-133-00 CERAMIC CHIP 470PF 5% 50V (EK)  
C30 1-163-097-00 CERAMIC CHIP 15PF 5% 50V

C32 1-161-476-00 CERAMIC 51PF 5% 50V (J, UC)  
1-107-075-00 MICA 39PF 5% 50V (EK)  
C33 1-161-476-00 CERAMIC 51PF 5% 50V (J, UC)  
1-107-075-00 MICA 39PF 5% 50V (EK)  
C38 1-161-463-00 CERAMIC 220PF 5% 50V (J, UC)  
1-161-461-00 CERAMIC 150PF 5% 50V (EK)  
C43 1-107-210-00 MICA 22PF 5% 500V (J, UC)  
1-107-208-00 MICA 18PF 5% 500V (EK)  
C46 1-163-141-00 CERAMIC CHIP 0.001 5% 50V

C47 1-161-855-00 CERAMIC 47PF 5% 50V  
C48 1-163-117-00 CERAMIC CHIP 100PF 5% 50V  
C49 1-102-973-00 CERAMIC 100PF 10% 50V  
Ser No. 10001~10020 (J, UC)  
Ser No. 10001~10010 (EK)  
1-102-951-00 CERAMIC 15PF 5% 50V  
Ser No. 10021~ (J)  
Ser No. 10021~ (UC)  
Ser No. 10011~ (EK)  
C51 1-102-816-00 CERAMIC 120PF 5% 50V (EK)

CN1 1-506-731-21 RECEPTACLE 40P MALE

D1 8-719-101-23 1SS123  
D2 8-719-101-23 1SS123  
D3 8-719-101-23 1SS123  
D4 8-719-921-12 HZ2BLL  
D5 8-719-815-59 IS1555S  
10001~10020 (J, UC)  
10001~10010 (EK)  
8-719-100-03 IS2835  
10021~ (J, UC)  
10011~ (EK)  
D6 8-719-815-55 IS1555  
10021~10080 (J)  
10021~10240 (UC)  
10001~10030 (EK)  
8-719-100-05 IS2837  
10081~ (J)  
10241~ (UC)  
10031~ (EK)  
D7 8-719-815-55 IS1555  
10081~ (J)  
10241~ (UC)  
10031~ (EK)

Ref. No.	Part No.	Description
IC1	8-757-930-11	CX7930A: SONY
IC2	8-759-907-21	CX7969: SONY
IC3	8-759-200-81	TC4053BF: TOSHIBA
IC4	8-759-200-79	TC4049BF: TOSHIBA
IC5	8-759-200-79	TC4049BF: TOSHIBA
IC6	8-759-204-93	TC50H001F: TOSHIBA
IC7	8-759-906-53	TL062CPS: TI
IC8	8-741-133-70	BX1337: SONY
IC9	8-741-134-00	BX1340: SONY
IC10	8-759-206-55	TC74HC4538F: TOSHIBA
IC11	8-741-133-80	BX1338: SONY
IC12	8-759-200-81	TC4053BF: TOSHIBA
IC13	8-741-133-91	BX1339A: SONY
L1	1-408-151-00	MICRO 47
L2	1-408-151-00	MICRO 47
L3	1-408-417-21	MICRO 47
L4	1-408-417-21	MICRO 47
L5	1-408-417-21	MICRO 47
L6	1-408-170-00	MICRO 18
L7	1-408-417-21	MICRO 47
L8	1-408-150-00	MICRO 22
L9	1-408-150-00	MICRO 22
L10	1-408-417-21	MICRO 47
L11	1-408-417-21	MICRO 47
L12	1-408-417-21	MICRO 47
L13	1-408-151-00	MICRO 47
Q1	8-729-100-66	2SC1623
Q2	8-729-100-76	2SA812
Q3	8-729-100-76	2SA812
Q4	8-729-100-76	2SA812
Q5	8-729-100-76	2SA812
Q6	8-729-175-73	2SC2757
Q7	8-729-100-76	2SA812
Q8	8-729-100-66	2SC1623

Ref. No.	Part No.	Description
R33	1-215-473-00	METAL 150K 1% 1/6W
R55	1-215-433-00	METAL 3300 1% 1/6W Ser No. 10001~10020 (J,UC) Ser No. 10001~10010 (EK)
R56	1-247-817-00	CARBON 270 5% 1/6W Ser No. 10001~10020 (J,UC) Ser No. 10001~10010 (EK)
	1-249-420-11	CARBON 1800 5% 1/6W Ser No. 10021~10080 (J) Ser No. 10021~10240 (UC) Ser No. 10011~10030 (EK)
R60	1-249-429-11	CARBON 10K 5% 1/6W (EK) Ser No. 10001~10030
R61	1-215-445-00	METAL 10K 1% 1/6W Ser No. 10001~10020 (J,UC) Ser No. 10001~10010 (EK)
R61	1-215-445-00	METAL 10K 1% 1/6W Ser No. 10001~10020 (J,UC) Ser No. 10001~10010 (EK)
RV1	1-228-460-11	METAL 20K Ser No. 10021~ (J) Ser No. 10021~ (UC) Ser No. 10011~ (EK)
RV2	1-228-475-00	METAL 20K
RV3	1-228-475-00	METAL 20K (J, UC)
	1-228-476-00	METAL 50K (EK)
RV4	1-228-475-00	METAL 20K
RV5	1-228-460-00	METAL 20K
S1	1-553-925-00	ROTARY "H BLKG SELECT"
S2	1-554-075-00	SLIDE "V BLKG SELECT"
S4	1-554-076-00	SLIDE "COLOR FRAME"
S5	1-554-076-00	SLIDE "CABLE COMP"
S6	1-570-374-00	SLIDE "EXT SC PHASE 0°/180°"
S7	1-554-076-00	SLIDE "INT SC PHASE 0°/180°"
TH1	1-806-166-00	POSITIVE 4.3K
X1	1-567-666-11	14.318MHz (J, UC)
	1-567-654-11	17.734MHz (EK)



## SW-114, SW-115, SW-116, TG-21/21P

Ref. No. Part No. Description

### SW-114 BOARD

A-7520-249-A MOUNTED CIRCUIT BOARD  
"SW-114"

S1 1-553-739-21 KEY BOARD "VTR START"

### SW-115 BOARD

A-7520-248-A MOUNTED CIRCUIT BOARD  
"SW-115"

CN1 1-506-469-11 RECEPTACLE, 4P MALE

D1 8-719-910-98 HZ9C2L  
D2 8-719-815-55 1S1555  
D3 8-719-815-55 1S1555

R1 1-249-429-11 CARBON 10K 5% 1/6W  
R2 1-249-429-11 CARBON 10K 5% 1/6W  
R3 1-249-429-11 CARBON 10K 5% 1/6W

S1 1-554-356-00 TOGGLE "CAMERA/VTR"  
S2 1-554-400-00 TOGGLE "GAIN"  
S3 1-554-400-00 TOGGLE "OUTPUT/DCC"  
S4 1-554-356-00 TOGGLE "WHT BAL"

### SW-116 BOARD

1-618-177-11 PRINTED CIRCUIT BOARD  
"SW-116"

CN1 1-506-484-11 RECEPTACLE, 5P MALE

S1 1-554-395-00 TOGGLE "AUTO W/B BAL"

Ref. No. Part No. Description

### TG-21/21P BOARD

A-7513-389-A MOUNTED CIRCUIT BOARD  
"TG-21" (J, UC)  
A-7513-390-A MOUNTED CIRCUIT BOARD  
"TG-21P" (EK)  
1-506-759-11 RECEPTACLE, 15P MALE

C1 1-163-141-00 CERAMIC CHIP 0.001 5% 50V  
C5 1-127-516-11 ELECT 220 20% 10V  
C6 1-163-141-00 CERAMIC CHIP 0.001 5% 50V  
C7 1-163-141-00 CERAMIC CHIP 0.001 5% 50V  
C9 1-163-109-00 CERAMIC CHIP 47PF 5% 50V

C15 1-163-109-00 CERAMIC CHIP 47PF 5% 50V  
C16 1-163-113-00 CERAMIC CHIP 68PF 5% 50V  
C17 1-163-105-00 CERAMIC CHIP 33PF 5% 50V  
C19 1-101-881-00 CERAMIC 47PF 10% 50V

D1 8-719-100-05 1S2837  
D2 8-719-100-05 1S2837

IC1 8-759-922-28 CX23047B: SONY  
IC2 8-759-746-11 MB7052PF-P5N1: FUJITSU (J, UC)  
8-759-767-80 MB7052PF-P5C1: FUJITSU (EK)  
IC3 8-759-204-98 TC74HC08F: TOSHIBA  
IC4 8-759-205-00 TC74HC14F: TOSHIBA

L1 1-408-397-00 MICRO 1

Q1 8-729-100-76 2SA812  
Q2 8-729-175-73 2SC2757

R29 1-215-389-00 METAL 47 1% 1/6W

RV1 1-228-471-00 METAL 1K

X1 1-567-653-21 28.636MHz (J, UC)  
1-567-550-11 28.375MHz (EK)

Ref. No. Part No. Description  
**VA-37 BOARD**  
 A-7513-393-A MOUNTED CIRCUIT BOARD "VA-37"

C6 1-163-121-00 CERAMIC CHIP 150PF 5% 50V  
 C17 1-102-965-00 CERAMIC 39PF 5% 50V  
 C28 1-163-121-00 CERAMIC CHIP 150PF 5% 50V  
 C38 1-101-884-00 CERAMIC 56PF 5% 50V  
 C51 1-163-121-00 CERAMIC CHIP 150PF 5% 50V  
 C62 1-101-880-00 CERAMIC 47PF 5% 50V  
 C68 1-163-117-00 CERAMIC CHIP 100PF 5% 50V  
 C69 1-130-471-00 MYLAR 0.001 5% 50V  
 C70 1-130-471-00 MYLAR 0.001 5% 50V  
 C79 1-131-341-00 TANTALUM 0.1 10% 35V  
 C80 1-130-483-00 MYLAR 0.01 5% 50V  
 C82 1-130-471-00 MYLAR 0.001 5% 50V  
 C83 1-163-125-00 CERAMIC CHIP 220PF 5% 50V  
 C99 1-163-101-00 CERAMIC CHIP 22PF 5% 50V  
 C100 1-163-101-00 CERAMIC CHIP 22PF 5% 50V  
 C101 1-163-101-00 CERAMIC CHIP 22PF 5% 50V  
 C105 1-101-889-21 CERAMIC 68PF 10% 50V  
 C106 1-102-967-21 CERAMIC 22PF 10% 50V  
 C107 1-161-458-00 CERAMIC 82PF 5% 50V  
 C112 1-163-251-00 CERAMIC CHIP 100PF 5% 50V  
 C115 1-163-251-00 CERAMIC CHIP 10PF 5% 50V

CN1 1-506-730-11 RECEPTACLE, 40P MALE

CV1 1-141-301-11 TRIMMER 35PF  
 CV2 1-141-301-11 TRIMMER 35PF  
 CV3 1-141-301-11 TRIMMER 35PF

D1 8-719-101-97 1SS97-1  
 D3 8-719-800-76 1SS226  
 D4 8-719-101-97 1SS97-1  
 D5 8-719-800-76 1SS226  
 D6 8-719-101-23 1SS123  
 D7 8-719-101-97 1SS97-1  
 D8 8-719-800-76 1SS226  
 D9 8-719-101-23 1SS123  
 Ser No. 10001~10020 (J, UC)  
 Ser No. 10001~10010 (EK)  
 D10 8-719-101-23 1SS123  
 D11 8-719-100-05 1S2837  
 D12 8-719-100-05 1S2837  
 D13 8-719-100-05 1S2837  
 D30 8-719-100-03 1S2835

FL1 1-235-839-11 9.5 MHZ  
 FL2 1-235-839-11 9.5 MHZ  
 FL3 1-235-839-11 9.5 MHZ

BVP-5 (J, UC)  
 BVP-5P (EK)

Ref. No. Part No. Description  
 IC1 8-759-906-53 TL062CPS: TI  
 IC2 1-807-415-11 BH1210: SONY  
 IC3 1-807-417-11 BH1212: SONY  
 Ser No. 10001~10080 (J)  
 Ser No. 10001~10240 (UC)  
 Ser No. 10001~10030 (EK)  
 1-807-417-12 BH1212A: SONY  
 Ser No. 10081~ (J)  
 Ser No. 10241~ (UC)  
 Ser No. 10031~ (EK)  
 IC4 8-759-906-53 TL062CPS: TI  
 IC5 1-807-415-11 BH1210: SONY  
 IC6 1-807-417-11 BH1212: SONY  
 Ser No. 10001~10080 (J)  
 Ser No. 10001~10240 (UC)  
 Ser No. 10001~10030 (EK)  
 1-807-417-12 BH1212A: SONY  
 Ser No. 10081~ (J)  
 Ser No. 10241~ (UC)  
 Ser No. 10031~ (EK)  
 IC7 8-759-906-53 TL062CPS: TI  
 IC8 1-807-415-11 BH1210: SONY  
 IC9 1-807-417-11 BH1212: SONY  
 Ser No. 10001~10080 (J)  
 Ser No. 10001~10240 (UC)  
 Ser No. 10001~10030 (EK)  
 1-807-417-12 BH1212A: SONY  
 Ser No. 10081~ (J)  
 Ser No. 10241~ (UC)  
 Ser No. 10031~ (EK)  
 IC10 8-759-200-81 TC4053BF: TOSHIBA  
 IC11 8-759-200-90 TC4538BF: TOSHIBA  
 IC12 8-759-205-78 TC504013BF: TOSHIBA  
 IC13 8-759-906-53 TL062CPS: TI  
 IC14 8-759-205-41 TC74HC4066F: TOSHIBA  
 IC15 8-759-200-81 TC4053BF: TOSHIBA  
 IC16 8-759-906-54 TL064CNS: TI  
 IC17 8-759-906-54 TL064CNS: TI  
 IC18 8-759-200-81 TC4053BF: TOSHIBA  
 IC19 8-759-906-54 TL064CNS: TI  
 IC20 8-759-200-81 TC4053BF: TOSHIBA  
 Q1 8-729-122-63 2SA1226  
 Q2 8-729-122-63 2SA1226  
 Q3 8-729-100-76 2SA812  
 Q4 8-729-175-73 2SC2757  
 Q5 8-729-109-44 2SK94  
 Q6 8-729-109-44 2SK94  
 Q8 8-729-109-44 2SK94  
 Q9 8-729-109-44 2SK94  
 Q10 8-729-109-44 2SK94  
 Q11 8-729-175-73 2SC2757  
 Q12 8-729-122-63 2SA1226  
 Q13 8-729-122-63 2SA1226  
 Q14 8-729-100-76 2SA812  
 Q15 8-729-175-73 2SC2757  
 Q16 8-729-109-44 2SK94

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
Q17	8-729-109-44	2SK94	RV1	1-228-474-00	METAL 10K
Q18	8-729-109-44	2SK94	RV2	1-228-472-00	METAL 2K
Q19	8-729-109-44	2SK94	RV3	1-228-460-00	METAL 20K
Q20	8-729-109-44	2SK94	RV4	1-228-459-00	METAL 10K
Q21	8-729-109-44	2SK94	RV5	1-228-474-00	METAL 10K
Q22	8-729-175-73	2SC2757	RV6	1-228-472-00	METAL 2K
Q23	8-729-122-63	2SA1226	RV7	1-228-460-00	METAL 20K
Q24	8-729-122-63	2SA1226	RV8	1-228-459-00	METAL 10K
Q25	8-729-100-76	2SA812	RV9	1-228-474-00	METAL 10K
Q26	8-729-175-73	2SC2757	RV10	1-228-472-00	METAL 2K
Q27	8-729-109-44	2SK94	RV11	1-228-460-00	METAL 20K
Q28	8-729-109-44	2SK94	RV12	1-228-459-00	METAL 10K
Q29	8-729-109-44	2SK94	RV13	1-228-475-00	METAL 20K
Q30	8-729-109-44	2SK94	RV14	1-228-475-00	METAL 20K
Q31	8-729-109-44	2SK94	RV15	1-228-475-00	METAL 20K
Q32	8-729-175-73	2SC2757	RV16	1-228-462-00	METAL 100K
Q33	8-729-100-76	2SA812	RV17	1-228-462-00	METAL 100K
Q34	8-729-100-76	2SA812	RV18	1-228-462-00	METAL 100K
Q35	8-729-100-76	2SA812	RV19	1-228-462-00	METAL 100K
Q36	8-729-100-76	2SA812	RV20	1-228-462-00	METAL 100K
Q37	8-729-100-76	2SA812	RV21	1-228-462-00	METAL 100K
Q39	8-729-100-76	2SA812	RV22	1-228-462-00	METAL 100K
Q40	8-729-100-76	2SA812	RV23	1-228-462-00	METAL 100K
Q41	8-729-109-44	2SK94	RV24	1-228-462-00	METAL 100K
Q42	8-729-100-66	2SC1623	RV25	1-228-462-00	METAL 100K
Q43	8-729-109-44	2SK94	RV26	1-228-462-00	METAL 100K
Q44	8-729-100-66	2SC1623	RV27	1-228-462-00	METAL 100K
Q45	8-729-122-63	2SA1226	RV28	1-228-457-00	METAL 2K
Q46	8-729-122-63	2SA1226	RV29	1-228-457-00	METAL 2K
Q47	8-729-122-63	2SA1226	RV30	1-228-457-00	METAL 2K
Q48	8-729-100-66	2SC1623	RV31	1-228-462-00	METAL 100K
Q49	8-729-109-44	2SK94	RV32	1-228-462-00	METAL 100K
Q50	8-729-122-63	2SA1226	RV33	1-228-462-00	METAL 100K
			RV34	1-228-462-00	METAL 100K
			RV35	1-228-462-00	METAL 100K
R21	1-247-859-00	CARBON 15K 5% 1/6W	RV36	1-228-462-00	METAL 100K
R55	1-247-859-00	CARBON 15K 5% 1/6W	RV38	1-228-462-00	METAL 100K
R94	1-247-859-00	CARBON 15K 5% 1/6W	RV39	1-228-462-00	METAL 100K
R154	1-215-482-51	METAL 360K 1% 1/6W	RV40	1-228-462-00	METAL 100K
R200	1-247-885-00	CARBON 180K 5% 1/6W	RV43	1-228-460-00	METAL 20K
R235	1-215-469-00	METAL 100K 1% 1/6W	RV45	1-228-460-00	METAL 20K
R236	1-215-477-00	METAL 220K 1% 1/6W	RV46	1-228-460-00	METAL 20K
R237	1-215-461-00	METAL 47K 1% 1/6W	RV47	1-228-460-00	METAL 20K
R240	1-247-875-00	CARBON 68K 5% 1/6W	RV48	1-228-465-00	METAL 1M
R241	1-247-813-00	CARBON 180K 5% 1/6W			
R242	1-247-875-00	CARBON 68K 5% 1/6W	S1	1-554-076-00	SLIDE "GAIN SELECT"
R251	1-215-487-00	METAL FILM 560K 1% 1/6W	S2	1-570-610-11	TOGGLE "TEST ON"
R256	1-247-783-00	CARBON 10 5% 1/6W			
R257	1-247-775-00	CARBON 4.7 5% 1/6W			
R258	1-247-775-00	CARBON 4.7 5% 1/6W			

Ref. No. Part No. Description

**CAMERA FRAME**

1-937-212-13 VF SOCKET WITH HARNESS  
1-937-440-11 PA SOCKET WITH HARNESS  
1-564-681-11 PLUG, CONTACT  
1-937-213-11 50P SOCKET WITH HARNESS

CN101 1-563-124-11 PLUG, HOUSING 20P  
1-563-115-11 INDEX PIN

CN102 1-562-221-21 RECEPTACLE, 12P FEMALE

"LENS"

CN103 1-561-781-41 RECEPTACLE, BNC "TEST OUT"

CN104 1-562-112-00 RECEPTACLE, 50P MALE  
1-560-974-00 PLUG, CONTACT AWG 22~24  
1-560-975-00 PLUG, CONTACT AWG 26~28  
1-564-298-11 PLUG, CONTACT AWG 28

Ref. No. Part No. Description

**VIEWFINDER**

**CN-127 BOARD**

1-618-182-11 PRINTED CIRCUIT BOARD

"CN-127"

**LP-28 BOARD**

A-7513-066-A MOUNTED CIRCUIT BOARD

"LP-28"

D1 8-719-812-43 TLG124A  
D2 8-719-812-43 TLG124A  
D3 8-719-812-43 TLG124A  
D4 8-719-812-43 TLG124A  
D5 8-719-812-41 TLR124

D6 8-719-812-44 TLO124  
D7 8-719-812-43 TLG124A  
D8 8-719-900-92 GL-9PR20  
D9 8-719-900-92 GL-9PR20  
D10 8-719-909-20 GL-9NG2  
D11 8-719-909-20 GL-9NG2

R1 1-247-831-00 CARBON 1K 5% 1/6W

**SW-80 BOARD**

1-612-778-11 PRINTED CIRCUIT BOARD

"SW-80"

D1 8-719-101-97 1SS97-1  
D2 8-719-815-55 1S1555

S1 1-554-922-11 TOGGLE "TALLY/ZEBRA"

Ref. No. Part No. Description

## VF-26 BOARD

A-7513-402-A MOUNTED CIRCUIT BOARD

"VF-26"

C10 1-163-247-00 CERAMIC CHIP 68PF 5% 50V  
 C13 1-163-109-00 CERAMIC CHIP 47PF 5% 50V  
 C15 1-106-192-00 MYLAR 0.0068 5% 100V

△ C18 1-136-287-11 POLYESTER 0.0047 5% 100V

△ C19 1-136-287-11 POLYESTER 0.0047 5% 100V  
 1-136-288-11 POLYESTER 0.0051 5% 100V  
 1-136-289-11 POLYESTER 0.0056 5% 100V  
 1-136-290-11 POLYESTER 0.0062 5% 100V  
 1-136-291-11 POLYESTER 0.0068 5% 100V  
 1-136-292-11 POLYESTER 0.0075 5% 100V  
 1-136-293-11 POLYESTER 0.0082 5% 100V  
 1-136-306-11 POLYESTER 0.039 5% 100V  
 1-136-307-11 POLYESTER 0.0043 5% 100V

C21 1-163-991-11 CERAMIC CHIP 0.0022 10% 500V

C22 1-123-384-00 ELECT 10 20% 100V  
 C23 1-129-922-00 MYLAR 0.0022 10% 1K  
 C24 1-130-815-00 FILM 0.015 5% 630V  
 C27 1-124-168-00 ELECT 100 20% 16V  
 C33 1-130-487-00 MYLAR 0.022 5% 50V

C37 1-130-481-00 MYLAR 0.0068 5% 50V  
 C38 1-136-287-11 0.0047 5% 100V  
 C44 1-130-479-00 MYLAR 0.0047 5% 50V  
 C47 1-163-125-00 CERAMIC CHIP 220PF 5% 50V  
 C49 1-124-168-00 ELECT 100 20% 16V

C50 1-123-308-00 ELECT 220 20% 6.3V  
 C53 1-163-991-11 CERAMIC CHIP 0.0022 10% 500V

C55 1-106-188-00 MYLAR 0.0047 5% 100V  
 C65 1-127-509-00 ELECT 3.3 20% 25V

CN5 1-506-472-21 RECEPTACLE, 7P MALE  
 CN6 1-506-475-11 RECEPTACLE, 10P MALE  
 CN7 1-506-467-11 RECEPTACLE, 2P MALE

D1 8-719-815-55 1S1555  
 D2 8-719-815-55 1S1555  
 D3 8-719-101-23 1SS123  
 D4 8-719-100-05 1S2837  
 D5 8-719-101-23 1SS123

D7 8-719-900-93 V09C  
 D8 8-719-901-19 V11N  
 D10 8-719-900-93 V09C  
 D11 8-719-901-19 V11N  
 D12 8-719-815-55 1S1555

D13 8-719-101-23 1SS123  
 D14 8-719-800-76 1SS226

Ref. No. Part No. Description

IC1 8-759-300-28 HA11423MP: HITACHI  
 IC2 8-759-801-06 LB1423N: SANYO

L1 1-408-409-00 MICRO 10  
 L2 1-408-406-00 MICRO 5.6  
 L3 1-459-664-00 HORIZONTAL LINEARITY  
 L4 1-408-080-00 MICRO 100

Q1 8-729-100-66 2SC1623  
 Q2 8-729-100-66 2SC1623  
 Q3 8-729-100-66 2SC1623  
 Q4 8-729-100-76 2SA812  
 Q5 8-729-100-76 2SA812

Q6 8-729-109-44 2SK94  
 Q7 8-729-100-76 2SA812  
 Q8 8-729-800-32 2SC2362K  
 Q9 8-729-175-73 2SC2757  
 Q10 8-729-800-32 2SC2362K

Q11 8-729-800-27 2SA1016K  
 Q12 8-729-100-66 2SC1623  
 Q13 8-729-301-87 2SD1083L  
 Q14 8-729-901-03 DTC144WK  
 Q15 8-729-901-03 DTC144WK

Q17 8-729-901-03 DTC144WK  
 Q18 8-729-901-03 DTC144WK  
 Q19 8-729-100-66 2SC1623  
 Q20 8-729-100-66 2SC1623  
 Q21 8-729-100-66 2SC1623

Q22 8-729-100-76 2SA812  
 Q23 8-729-100-76 2SA812  
 Q24 8-729-216-32 2SA1163  
 Q25 8-729-216-32 2SA1163

R33 1-215-487-00 METAL 560K 1% 1/6W

△ R35 1-216-021-00 METAL CHIP 68 5% 1/10W

R44 1-214-466-00 METAL 2M 5% 1/4W  
 R45 1-214-467-00 METAL 3M 5% 1/4W  
 R85 1-215-490-00 METAL 750K 1% 1/6W

R86 1-215-490-00 METAL 750K 1% 1/6W  
 R97 1-215-493-00 METAL 1M 1% 1/6W  
 R98 1-247-775-00 CARBON 4.7 5% 1/6W

Ref. No.	Part No.	Description
RV1	1-228-452-00	METAL 50
RV2	1-228-466-00	METAL 2M
RV3	1-228-466-00	METAL 2M
RV4	1-228-458-00	METAL 5K
RV5	1-228-458-00	METAL 5K
RV6	1-228-455-00	METAL 500
RV7	1-228-458-00	METAL 5K
RV8	1-228-454-00	METAL 200
RV9	1-228-464-00	METAL 500K
RV10	1-228-464-00	METAL 500K
RV11	1-228-461-00	METAL 50K
RV12	1-237-033-31	METAL 1K
S1	1-554-371-00	TACT "PEAKING"
T1	1-446-106-00	HEATER PULS
T2	1-439-225-21	FLYBACK

Ref. No. Part No. Description

## VIEWFINDER FRAME

1-451-208-21	DEFLECTION YOKE	
1-464-168-22	MULTIPLIER	
1-546-043-11	PICTURE TUBE 1 1/2-INCH,	40LB4
1-558-609-11	CABLE SET, ROUND TYPE (M)	
1-564-681-11	PLUG, CONTACT	
1-934-936-11	CRT SOCKET WITH HARNESS	
1-526-540-00	SOCKET, PICTURE TUBE	
1-937-304-11	VF MAIN SOCKET WITH HARNESS	
1-564-681-11	PLUG, CONTACT	
1-560-704-00	RECEPTACLE, 20P MALE	
MIC1	8-814-221-00	MICROPHONE, C-2011
PL101	1-518-337-00	LAMP, TALLY 12V 60mA
	1-517-077-00	HOLDER, LAMP
RV101	1-226-735-00	CARBON 2K "CONTR"
RV102	1-226-736-00	CARBON 250K "BRIGHT"
RV103	1-230-489-11	CARBON 20K "AUDIO"
S102	1-554-924-11	TOGGLE "AUDIO/FILTER"

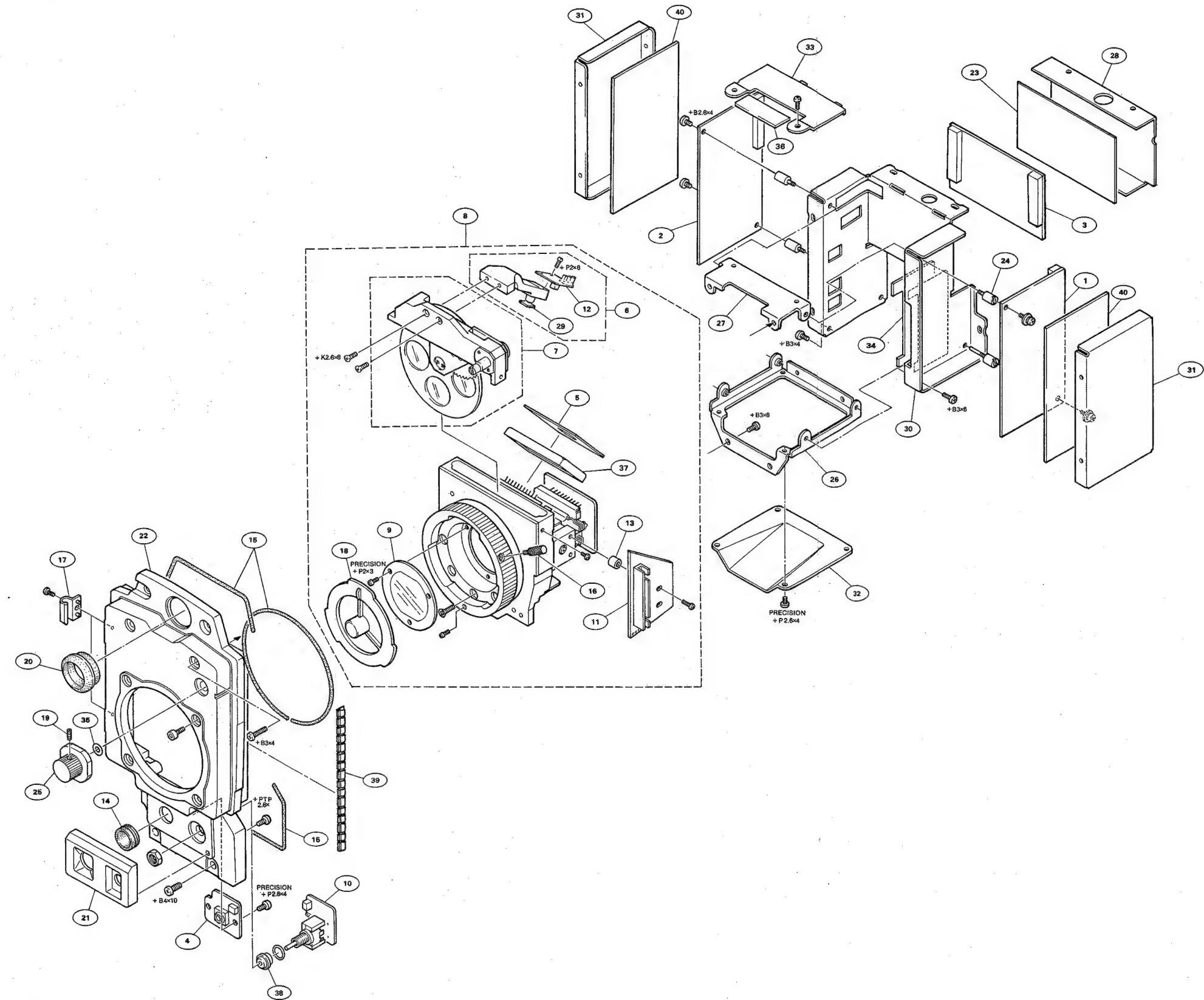
## 8-3. SCREWS

+B Bzn-N		+B Cr-N		+B Bzn-N		+K Cr-N		TOTSU B Bzn-N		+K Bzn-N	
7-682-□□□□		7-621-□□□□		7-621-□□□□		7-682-□□□□		7-621-□□□□		7-682-□□□□	
SIZE	Parts No.	SIZE	Parts No.	SIZE	Parts No.	SIZE	Parts No.	SIZE	Parts No.	SIZE	Parts No.
3 x 3	544-09	2 x 3	772-08	2 x 3	772-00	3 x 4	245-04	2 x 3	911-00	3 x 4	245-09
x 4	545-09	x 4	772-18	x 4	772-10	x 5	246-04	x 4	911-10	x 5	246-09
x 5	546-09	x 5	771-06	x 5	772-20	x 6	247-04	x 6	911-30	x 6	247-09
x 6	547-09	x 6	772-38	x 6	772-30	x 8	248-04	x 8	911-40	x 8	248-09
x 8	548-09	x 8	772-48	x 8	772-40	x 10	249-04			x 10	249-09
x 10	549-09	x 10	772-58	x 10	772-50	x 12	250-04	2,6 x 3	912-00	x 12	250-09
x 12	550-09	x 12	772-68	x 12	772-60	x 14	251-04	x 4	912-10	x 14	251-09
x 14	551-09	x 14	772-78	x 14	772-70	x 16	252-04	x 5	912-20	x 16	252-09
x 16	552-09	x 16	772-88	x 16	772-80	x 20	253-04	x 6	912-30	x 20	253-09
x 20	553-09	x 20	—	x 20	—			x 8	912-40		
4 x 4	558-09	2,6 x 3	775-08	2,6 x 3	775-00	4 x 6	260-04	x 10	912-50	4 x 6	260-09
x 5	559-09	x 4	773-86	x 4	775-10	x 8	261-04	x 12	912-60	x 8	261-09
x 6	560-09	x 5	770-87	x 5	775-20	x 10	262-04	x 14	912-70	x 10	262-09
x 8	561-09	x 6	770-67	x 6	773-95	x 12	263-04	x 16	912-80	x 12	263-09
x 10	562-09	x 8	770-99	x 8	775-40	x 14	264-04	x 20	912-90	x 14	264-09
x 12	563-09	x 10	773-87	x 10	775-50	x 16	265-04			x 16	265-09
x 14	564-09	x 12	775-68	x 12	775-60	x 20	266-04			x 20	266-09
x 16	565-09	x 14	775-78	x 14	775-70						
x 20	566-09	x 16	775-88	x 16	775-80						
		x 20	773-91	x 20	775-90						

+P Czn-N		+PS Bzn-N		PRECISION +P Cr-N		PRECISION +P Bzn-N		PRECISION +K Cr-N	
7-621-□□□□		7-682-□□□□		7-627-□□□□		7-627-□□□□		7-627-□□□□	
SIZE	Parts No.	SIZE	Parts No.	SIZE	Parts No.	SIZE	Parts No.	SIZE	Parts No.
2 x 3	255-15	2 x 4	253-00	1,7 x 1,6	—	1,7 x 1,6	552-18	1,7 x 1,8	—
x 4	255-25	x 5	253-10	x 1,8	—	x 1,8	—	x 2	—
x 5	255-35	x 6	253-20	x 2	552-27	x 2	552-28	x 2,2	—
x 6	255-45	x 8	253-30	x 2,2	552-87	x 2,2	—	x 2,5	—
x 8	255-55	x 10	253-40	x 2,5	552-07	x 2,5	552-08	x 2,8	—
x 10	255-65	x 12	253-50	x 2,8	—	x 2,8	—	x 3	—
x 12	255-75			x 3	552-37	x 3	552-38	x 3,5	—
x 14	255-85	2,6 x 4	253-90	x 3,5	—	x 3,5	552-78	x 4	—
x 16	256-05	x 5	254-00	x 4	552-47	x 4	552-48	x 4,5	—
x 20	256-25	x 6	254-10	x 4,5	552-67	x 4,5	—	x 5	—
		x 8	254-20	x 5	552-57	x 5	552-58	x 5,5	—
2,3 x 5	257-35	x 10	254-30	x 5,5	557-07	x 5,5	—	x 6	—
x 6	257-45	x 12	254-40	x 6	552-77	x 6	—		
x 8	257-55	x 14	254-90					2 x 2	452-07
x 10	257-65	x 16	254-50	2 x 1,8	554-37	2 x 1,8	554-38	x 2,2	452-87
x 12	257-75	x 20	254-60	x 2	553-17	x 2	553-18	x 2,5	—
x 14	257-85			x 2,2	554-07	x 2,2	—	x 2,8	—
x 16	258-05	3 x 5	646-09	x 2,5	553-27	x 2,5	553-28	x 3	452-17
x 20	258-25	x 6	647-09	x 2,8	—	x 2,8	554-58	x 3,5	—
		x 8	648-09	x 3	553-37	x 3	553-38	x 4	452-27
2,6 x 3	259-15	x 10	649-09	x 3,5	554-17	x 3,5	554-18	x 4,5	—
x 4	259-25	x 12	650-09	x 4	553-47	x 4	553-48	x 5	—
x 5	259-35	x 14	651-09	x 4,5	553-57	x 4,5	553-58	x 5,5	—
x 6	259-45	x 16	652-09	x 5	553-67	x 5	—	x 6	—
x 8	259-55	x 20	—	x 5,5	—	x 5,5	—	x 7	452-67
x 10	259-65			x 6	554-27	x 6	553-68	x 8	—
x 12	259-75	4 x 6	—	x 7	553-87	x 7	553-88		
x 14	259-85	x 8	—	x 8	553-97	x 8	553-98	2,6 x 3,5	—
x 16	260-05	x 10	—	x 10	553-77	x 10	553-78	x 4	454-17
x 20	260-25	x 12	—					x 4,5	—
		x 14	—	2,6 x 2,8	556-07	2,6 x 2,8	556-08	x 5	454-37
		x 16	—	x 3	—	x 3	—	x 5,5	—
		x 20	—	x 3,5	—	x 3,5	556-28	x 6	—
				x 4	556-37	x 4	556-38	x 7	—
				x 4,5	—	x 4,5	556-48	x 8	—
				x 5	—	x 5	556-58		
				x 5,5	—	x 5,5	—		
				x 6	556-77	x 6	556-78		
				x 7	—	x 7	—		
				x 8	556-97	x 8	—		
				x 9	—	x 9	—		
				x 10	557-47	x 10	—		

FRONT ASSY FRONT ASSY

8-4. EXPLODED VIEW  
FRONT ASSY



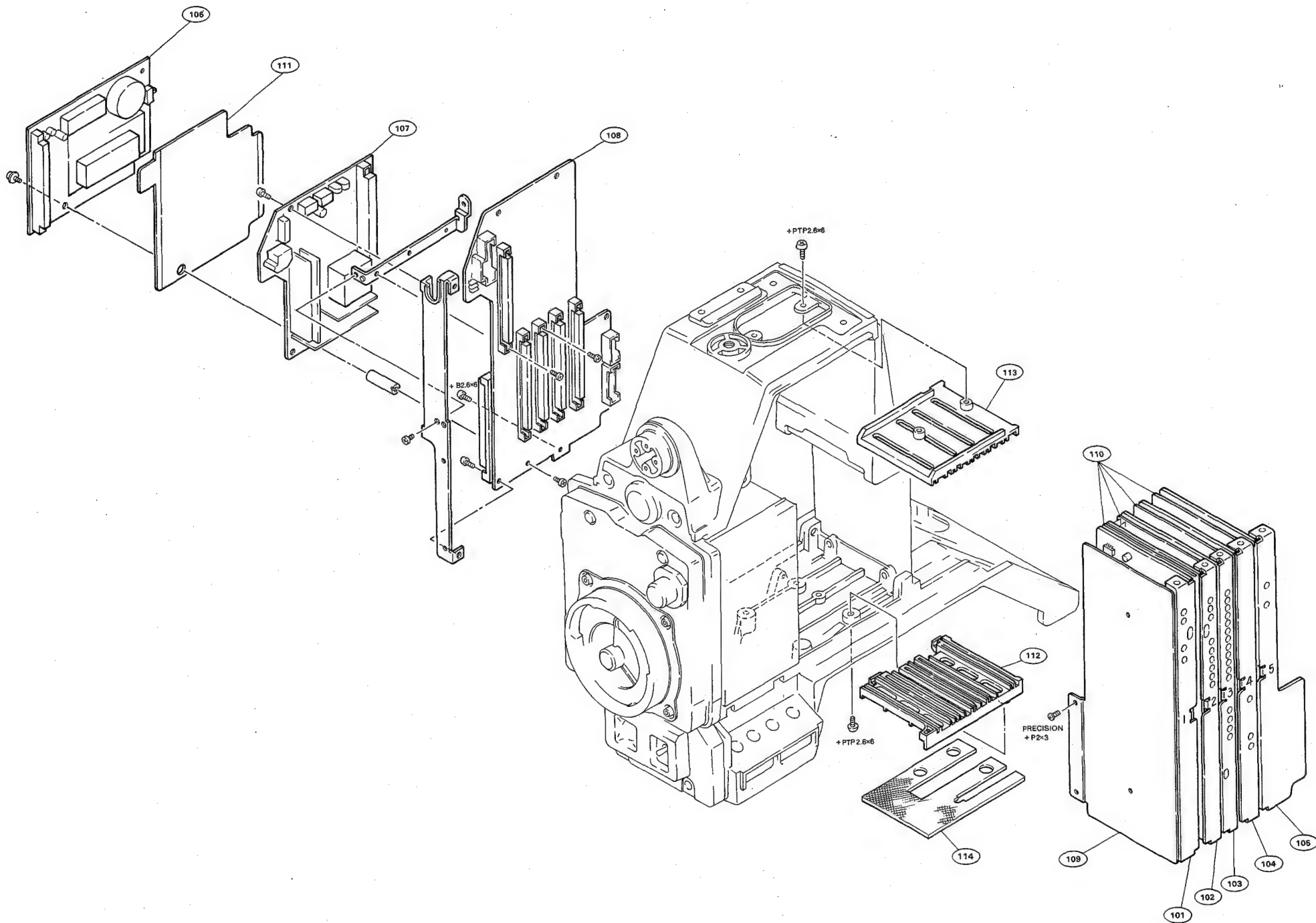
No.	Parts No.	Description
1	A-7513-387-A	MOUNTED CIRCUIT BOARD "DR-40"
2	A-7513-388-A	MOUNTED CIRCUIT BOARD "PA-51"
3	A-7513-389-A	MOUNTED CIRCUIT BOARD "TG-21"
4	A-7513-390-A	MOUNTED CIRCUIT BOARD "TG-21P"
5	A-7520-249-A	MOUNTED CIRCUIT BOARD "SW-114"
6	A-7520-251-A	MOUNTED CIRCUIT BOARD "BI-6"
7	A-7615-183-A	PELTIER ASSY
8	3-707-264-01	FILTER ASSY
9	<b>A-7575-091-A</b>	<b>CCD UNIT(N)</b>
10	<b>A-7575-092-A</b>	<b>CCD UNIT(P)</b>
11	1-547-202-11	FILTER UNIT, OPTICAL
12	1-618-177-11	PRINTED CIRCUIT BOARD "SW-116"
13	1-618-183-11	PRINTED CIRCUIT BOARD "CN-143"
14	1-618-264-11	PRINTED CIRCUIT BOARD "CN-119"
15	<b>2-290-031-00</b>	<b>SPACER</b>
16	<b>3-672-221-01</b>	<b>PACKING, CONTROL</b>
17	3-672-253-11	RUBBER, CONDUCTIVE
18	3-678-629-00	LEVER, MOUNT
19	3-678-684-01	HOLDER, CABLE
20	3-699-048-01	CAP, MOUNT
21	<b>3-701-505-01</b>	<b>SET SCREW, DOUBLE POINT 3X3</b>
22	3-710-024-01	PACKING, VF
23	3-710-025-01	GUARD (F), SWITCH
24	<b>3-710-042-01</b>	<b>PANEL, FRONT</b>
25	3-710-051-02	SHEET (R), INSULATING
26	3-710-052-01	SCREW, SHIELD CASE LID
27	<b>3-710-054-01</b>	<b>KNOB, FILTER</b>
28	3-710-056-01	STAY (B), SHIELD PLATE
29	3-710-057-02	STAY (T), SHIELD PLATE
30	3-710-058-02	CASE, SHIELD, REAR
31	3-710-059-01	CUSHION
32	3-710-063-01	CASE (MAIN), SHIELD
33	3-710-064-02	LID (A), SHIELD CASE
34	3-710-077-01	PLATE, SHIELD(B)
35	3-710-078-01	PLATE, SHIELD(T)
36	3-710-094-01	SHEET, SHIELD
37	<b>3-884-053-01</b>	<b>RING (O)</b>
38	3-710-708-01	COVER, RUBBER
39	3-710-023-01	COVER, BR
40	3-711-705-01	CAP, DROP PROTECTION
41	3-711-714-01	SPRING
42		SHEET, INSULATING



BOARD BLOCK

BOARD BLOCK

BOARD BLOCK

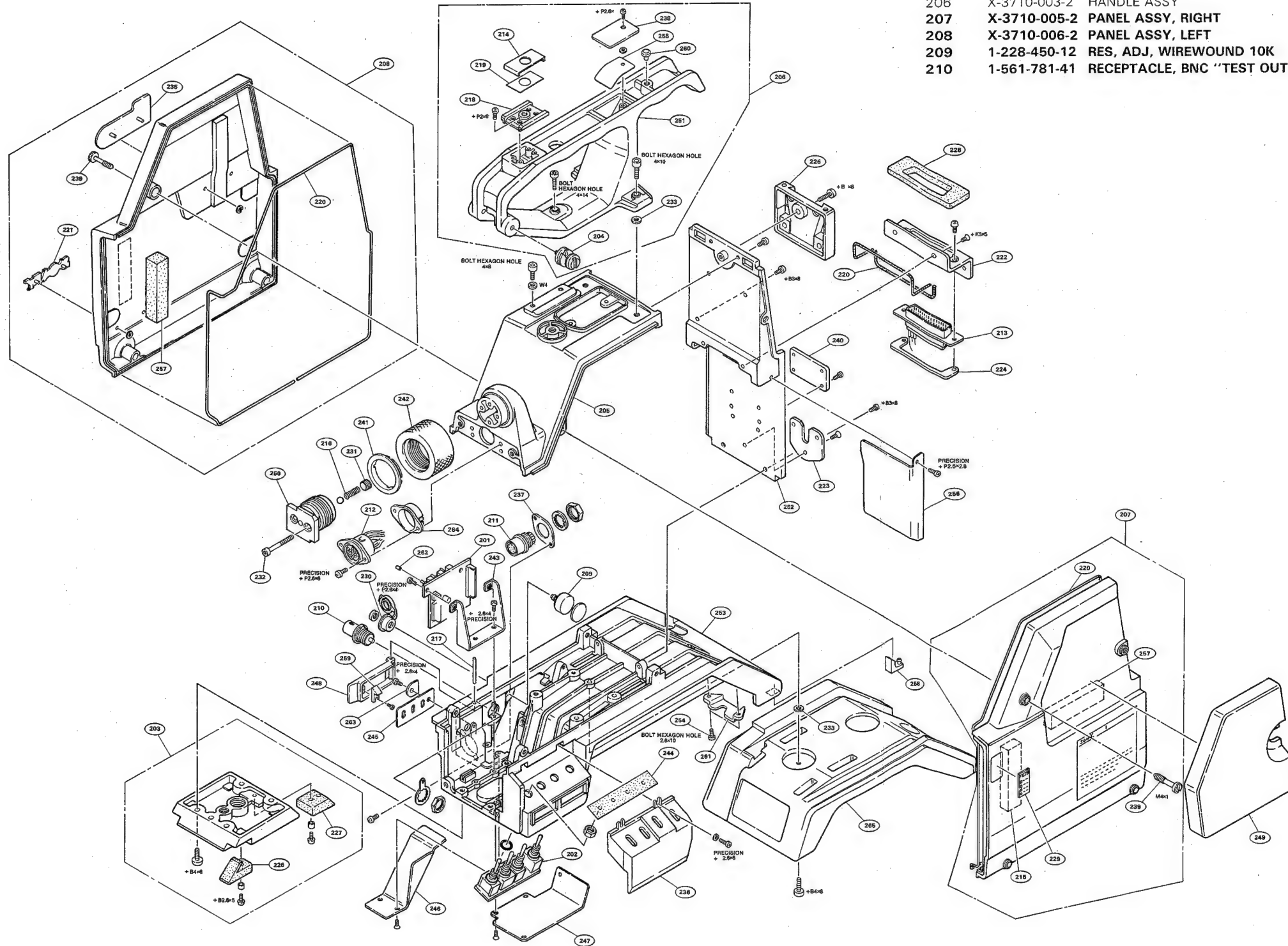


No.	Parts No.	Description
101	A-7513-391-A	MOUNTED CIRCUIT BOARD "IE-15"
	A-7513-392-A	MOUNTED CIRCUIT BOARD "IE-15P"
102	A-7513-393-A	MOUNTED CIRCUIT BOARD "VA-37"
103	A-7513-394-A	MOUNTED CIRCUIT BOARD "PR-78"
104	A-7513-395-A	MOUNTED CIRCUIT BOARD "EN-41"
	A-7513-396-A	MOUNTED CIRCUIT BOARD "EN-41P"
105	A-7513-397-A	MOUNTED CIRCUIT BOARD "PS-129"
106	A-7513-398-A	MOUNTED CIRCUIT BOARD "SG-117"
	A-7513-399-A	MOUNTED CIRCUIT BOARD "SG-117P"
107	A-7513-400-A	MOUNTED CIRCUIT BOARD "AT-42"
108	A-7513-401-A	MOUNTED CIRCUIT BOARD "HN-46"
109	X-3710-007-1	PLATE ASSY, SHIELD, EN
110	3-710-033-01	PLATE, SHIELD, PC BOARD
111	3-710-034-01	PLATE, SHIELD, AT
112	3-710-040-01	GUIDE (B)
113	3-710-041-01	RAIL (T), GUIDE
114	3-711-706-01	NET

## CHASSIS BLOCK

## CHASSIS BLOCK

## CHASSIS BLOCK



BVP-5 (J, UC)  
BVP-5P (EK)

8-31

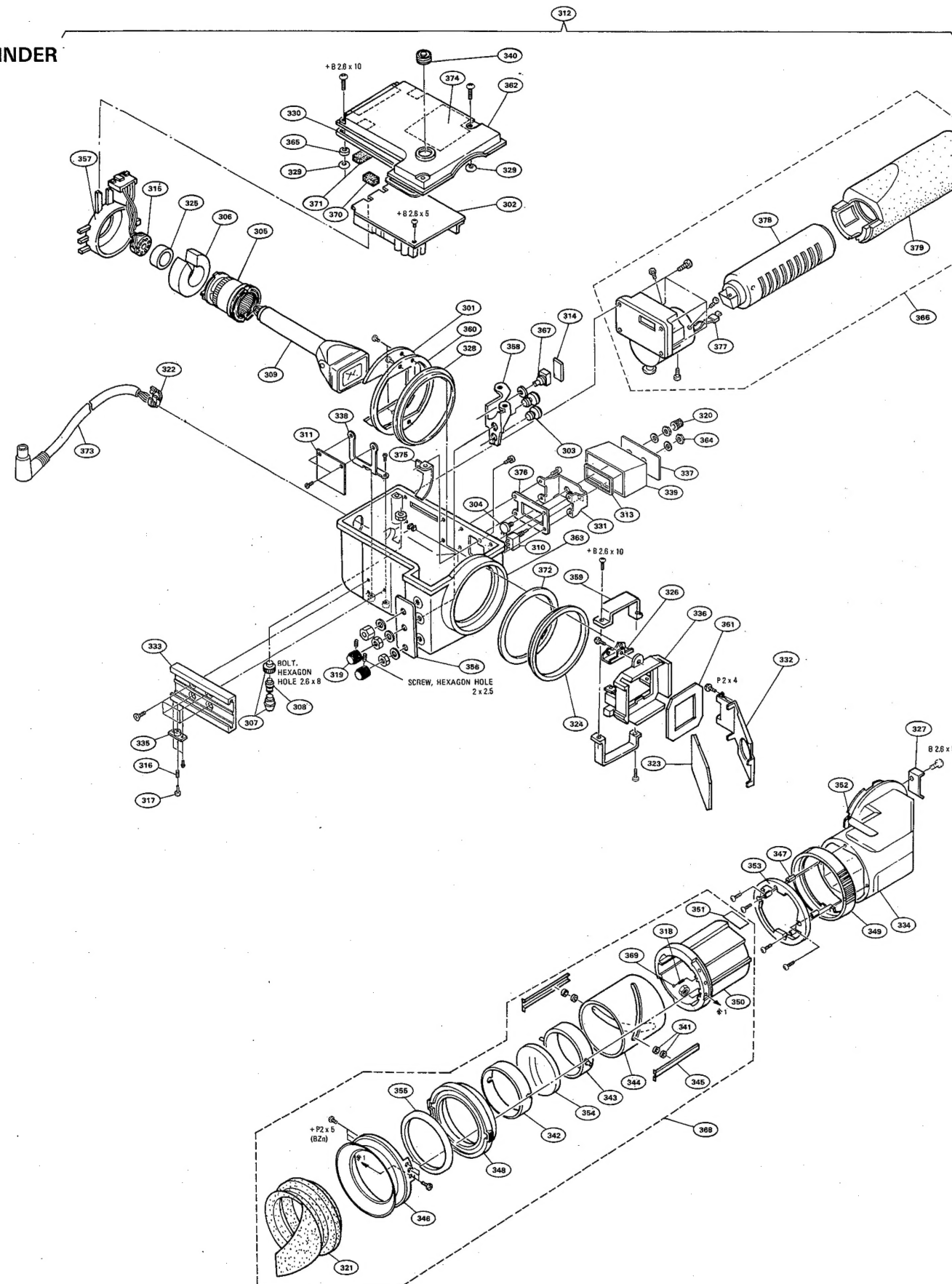
No.	Parts No.	Description
201	A-7513-413-A	MOUNTED CIRCUIT BOARD "RG-14"
	A-7513-413-A	MOUNTED CIRCUIT BOARD "RG-14P"
202	A-7520-248-A	MOUNTED CIRCUIT BOARD "SW-115"
203	X-3664-212-2	SHOE ASSY (B), T
204	X-3672-208-1	SUSPENSION ASSY (B)
205	X-3710-002-1	PLATE ASSY, UPPER
206	X-3710-003-2	HANDLE ASSY
207	X-3710-005-2	PANEL ASSY, RIGHT
208	X-3710-006-2	PANEL ASSY, LEFT
209	1-228-450-12	RES, ADJ, WIREWOUND 10K
210	1-561-781-41	RECEPTACLE, BNC "TEST OUT"

No.	Parts No.	Description
211	1-562-221-21	RECEPTACLE, 12P "LENS" (CN102)
212	1-937-212-11	HARNESS (VF)
213	1-937-213-11	HARNESS (50P)
214	2-277-468-01	PLATE, ORNAMENTAL, CAMERA SHOE
215	2-352-317-01	CUSHION, PCB
216	3-641-622-01	SPRING, COMPRESSION
217	3-649-266-01	PIN, PARALLEL
218	3-657-700-01	BRACKET, ACCESSORY
219	3-672-213-01	SHEET, ADHESIVE
220	3-711-710-01	RUBBER, SHIELD
221	3-672-268-01	EMBLEM, SONY
222	3-675-902-21	BRACKET (A), CONNECTOR
223	3-675-924-01	STOPPER
224	3-675-929-01	NUT (50P), PLATE
225	3-675-958-11	SHOE, C
226	3-675-963-02	FOOT, FRONT, RUBBER
227	3-675-964-01	FOOT, REAR, RUBBER
228	3-675-976-01	CUSHION
229	3-678-607-01	LABEL, FILTER
230	3-678-685-01	COVER
231	3-682-760-01	SCREW (M7-0.75), ADJUSTMENT
232	4-904-818-01	BOLT (3X25), HEXAGON HOLE
233	3-687-116-01	WASHER (4), STOPPER
235	3-710-098-01	EMBLEM, 3CCD
236	3-710-001-01	COVER, SW INDICATION
237	3-710-002-01	BRACKET
238	3-710-015-01	LID, HANDLE
239	3-710-016-02	SCREW (M4X18), LID
240	3-710-017-01	PLATE, PROTECTION
241	3-710-018-01	COLLAR, SLIDE
242	3-710-019-01	RING, LOCK
243	3-710-026-02	PLATE, FIXED, RG-14
244	3-710-027-01	SHEET, BLIND
245	3-710-028-01	PLATE, INDICATION, RG
246	3-710-029-02	LID (B), B
247	3-710-030-01	LID (A), B
248	3-710-031-01	COVER, SWITCH
249	3-710-032-01	PAD
250	3-710-039-02	SHOE, SLIDE
251	3-710-044-01	HANDLE
252	3-710-047-01	PLATE, REAR
253	3-710-049-01	CHASSIS, BASE
254	3-710-050-01	BOLT (M2.6X10), HEXAGON HOLE
255	3-710-053-01	VALVE, ADJUSTMENT
256	3-710-055-01	CASE, SHIELD, REAR PANEL
257	3-710-076-01	CUSHION
258	3-710-092-01	FOOT, REAR
259	3-710-093-01	SPACER, SWITCH
260	3-673-018-11	SCREW, BLIND
261	3-711-703-01	STOPPER
262	3-710-096-02	CAP, SWITCH
263	3-711-727-01	SPRING, LEAF
264	3-711-709-02	TUBE, EARTH
265	A-7612-276-A	PAD ASSY

8-32

# VIEWFINDER VIEWFINDER

## VIEWFINDER



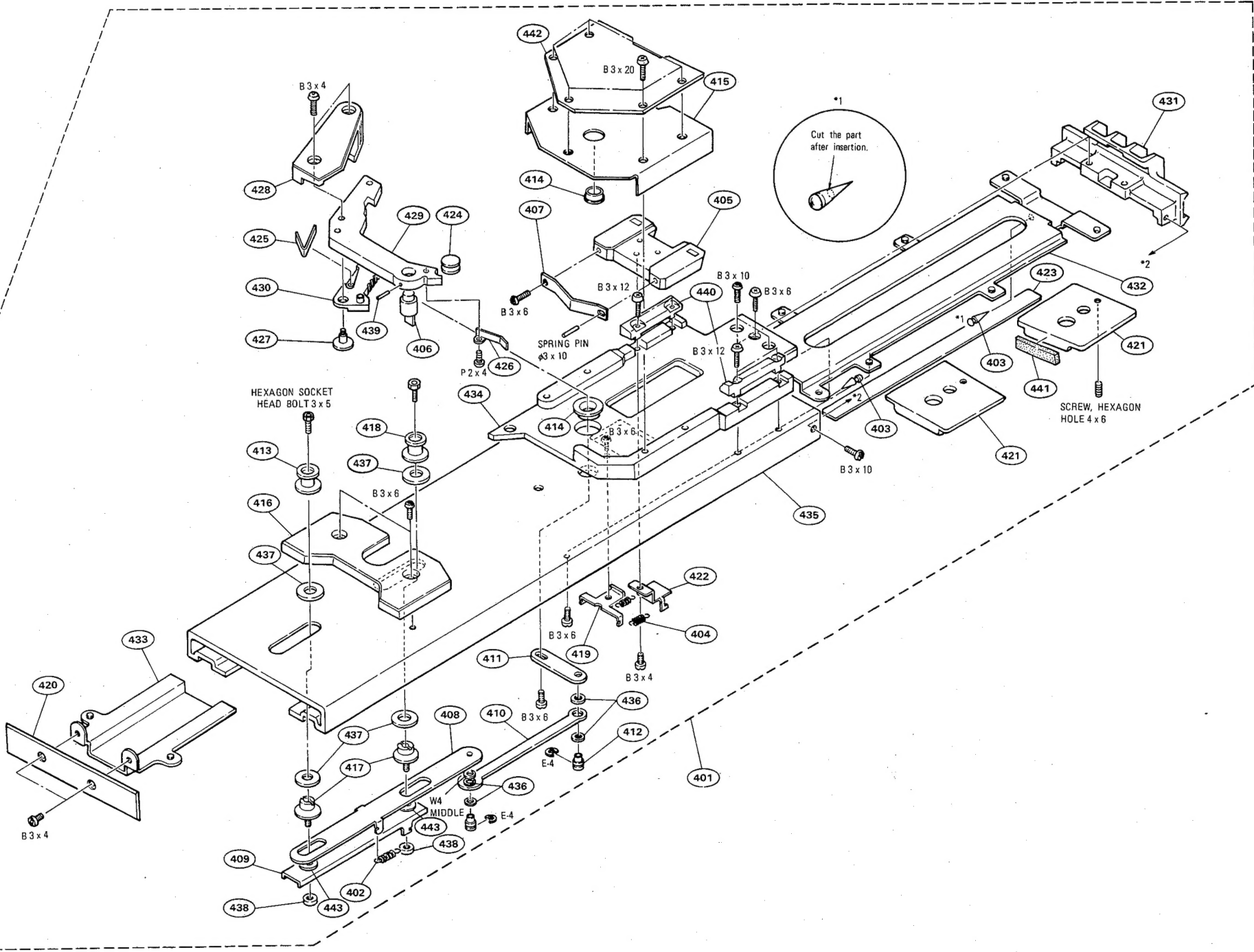
No.	Parts No.	Description
301	A-7513-066-A	MOUNTED CIRCUIT BOARD "LP-28"
302	A-7513-402-A	MOUNTED CIRCUIT BOARD "VF-26"
303	1-226-736-00	CARBON 250K (RV102)
304	1-230-489-11	CARBON 20K (RV103)
305	1-451-208-21	DEFLECTION YOKE
306	1-464-168-22	MULTIPLIER
307	1-517-077-00	HOLDER, LAMP
308	1-518-337-00	LAMP, TALLY
309	1-546-043-11	PICTURE TUBE 1 1/2-INCH 40LB4
310	1-554-924-11	SWITCH, TOGGLE (S102)
311	1-618-182-11	PRINTED CIRCUIT BOARD "CN-127"
312	A-7403-105-A	VF COMPLETE ASSY
313	3-710-005-01	SEAL
314	1-612-778-11	PRINTED CIRCUIT BOARD "SW-80"
315	1-934-936-11	SOCKET, PICTURE TUBE WITH HARNESS
	1-526-540-00	SOCKET, PICTURE TUBE
316	2-277-466-01	SPRING, COMPRESSION
317	2-277-457-01	KNOB, STOPPER
318	3-302-492-00	SPRING, COMPRESSION
319	3-657-627-00	KNOB (2)
320	3-657-627-11	KNOB (2)
321	3-657-771-02	EYE CUP (2)
322	2-234-904-01	CORD, BUSHING
323	3-672-201-00	MIRROR
324	3-672-241-00	RING (B), SLEEVE
325	3-672-244-00	SPACER, MULTI
326	3-680-129-01	SPRING, LEAF
327	3-710-099-01	STOPPER
328	3-672-247-00	RING (A), SLEEVE
329	3-672-250-00	RING (M2.6), O
330	3-711-715-01	RUBBER, CONDUCTIVE
331	3-710-006-01	BRACKET, AD
332	3-672-287-00	HOLDER, MIRROR
333	3-710-007-02	GUIDE, VF SLID
334	3-672-294-12	TUBE, VF
335	3-710-008-01	HOUSING, STOPPER
336	3-680-599-03	SUPPORT (C), CRT
337	3-710-009-01	NAME PLATE (A)
338	3-710-010-01	BRACKET, L
339	3-710-036-01	GUARD, SW
340	3-676-244-00	COVER, SWITCH
341	3-678-659-00	ROLLER
342	3-678-660-00	SUPPORT (A), LENS
343	3-678-661-00	HOLDER (B), LENS
344	3-678-662-00	TUBE, SLEEVE
345	3-678-663-00	GUIDE, ROLLER

No.	Parts No.	Description
346	3-678-664-00	HOLDER, EYE CUP
347	3-678-666-00	SPACER (DIA. 2X4)
348	3-678-667-02	RING, DIOPTR
349	3-685-119-01	RING (N), HOLD
350	3-678-669-00	HOLDER, DIOPTR RING
351	3-680-413-00	SEAL, RING HOLDER
352	3-680-414-00	SEAL, VF TUBE
353	3-680-416-00	RING, FIXED
354	3-680-417-00	LENS (B), VF
355	3-680-418-01	RING, O (RUBBER)
356	3-680-590-01	NAME PLATE (B) (CONTROL)
357	3-680-591-01	SUPPORT (B), CRT
358	3-680-592-01	BRACKET (A) (VF)
359	3-680-594-01	CLAMP, CRT
360	3-680-595-01	SUPPORT, ROTARY
361	3-680-598-00	PLATE, DISPLAY
362	3-685-101-11	COVER, VF
363	3-672-293-11	VF (MAIN)
364	3-685-104-01	VR NUT M6
365	3-701-438-11	WASHER, 2.5
366	8-814-221-00	MICROPHONE C-2011 (WITH WINDSCREEN)
367	1-554-922-11	SWITCH, TOGGLE (S101)
368	A-7612-223-A	LENS ASSY, CONTACT
369	7-671-154-01	STENLESS BALL 2
370	9-911-840-XX	RUBBER (B)
371	3-673-055-01	CUSHION
372	3-685-118-01	SPACER, RING
373	1-558-609-11	CABLE SET, ROUND TYPE (M)
374	3-685-116-01	INSULATOR, VF
375	3-711-713-00	BRACKET
376	3-711-701-01	STOPPER
377	X-2536-707-1	FET ASSY
378	X-2536-708-1	CAPSULE ASSY
379	X-2536-706-3	WINDSCREEN ASSY

# TRIPOD ADAPTOR

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## TRIPOD ADAPTOR

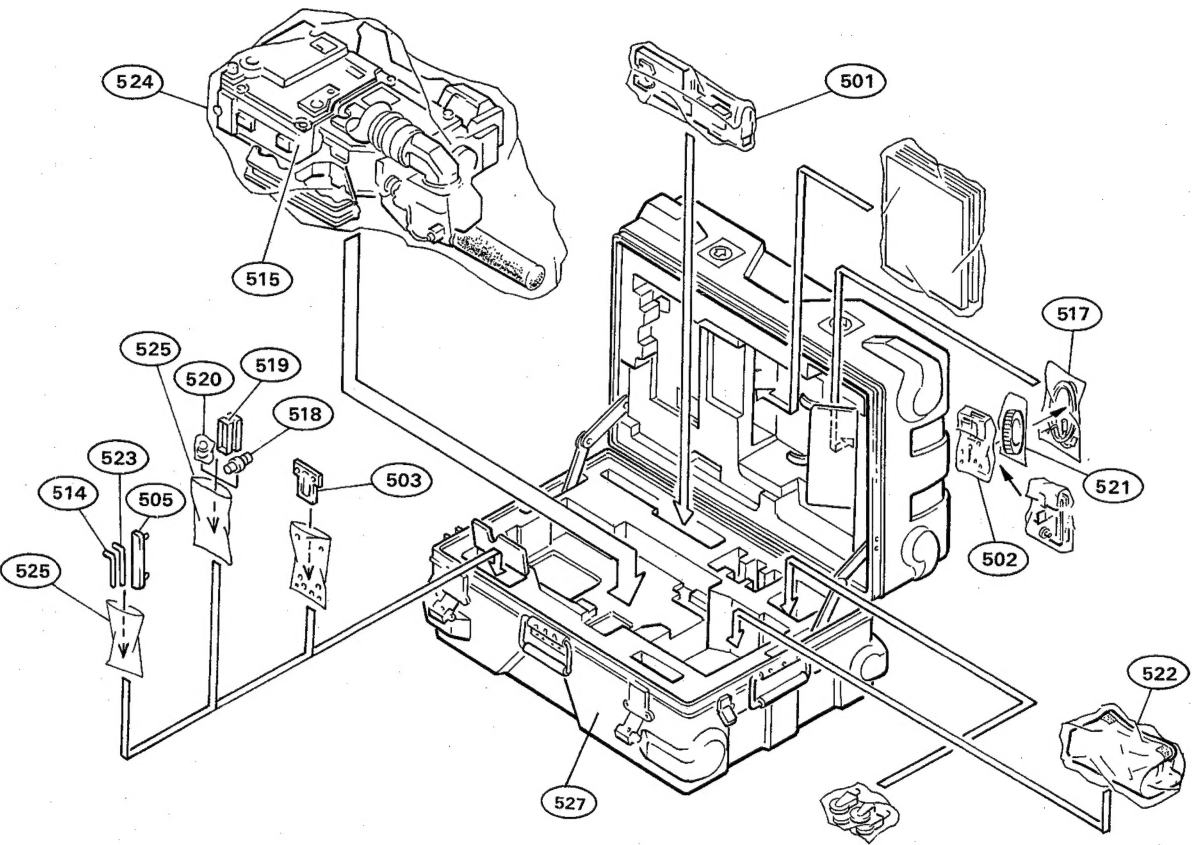
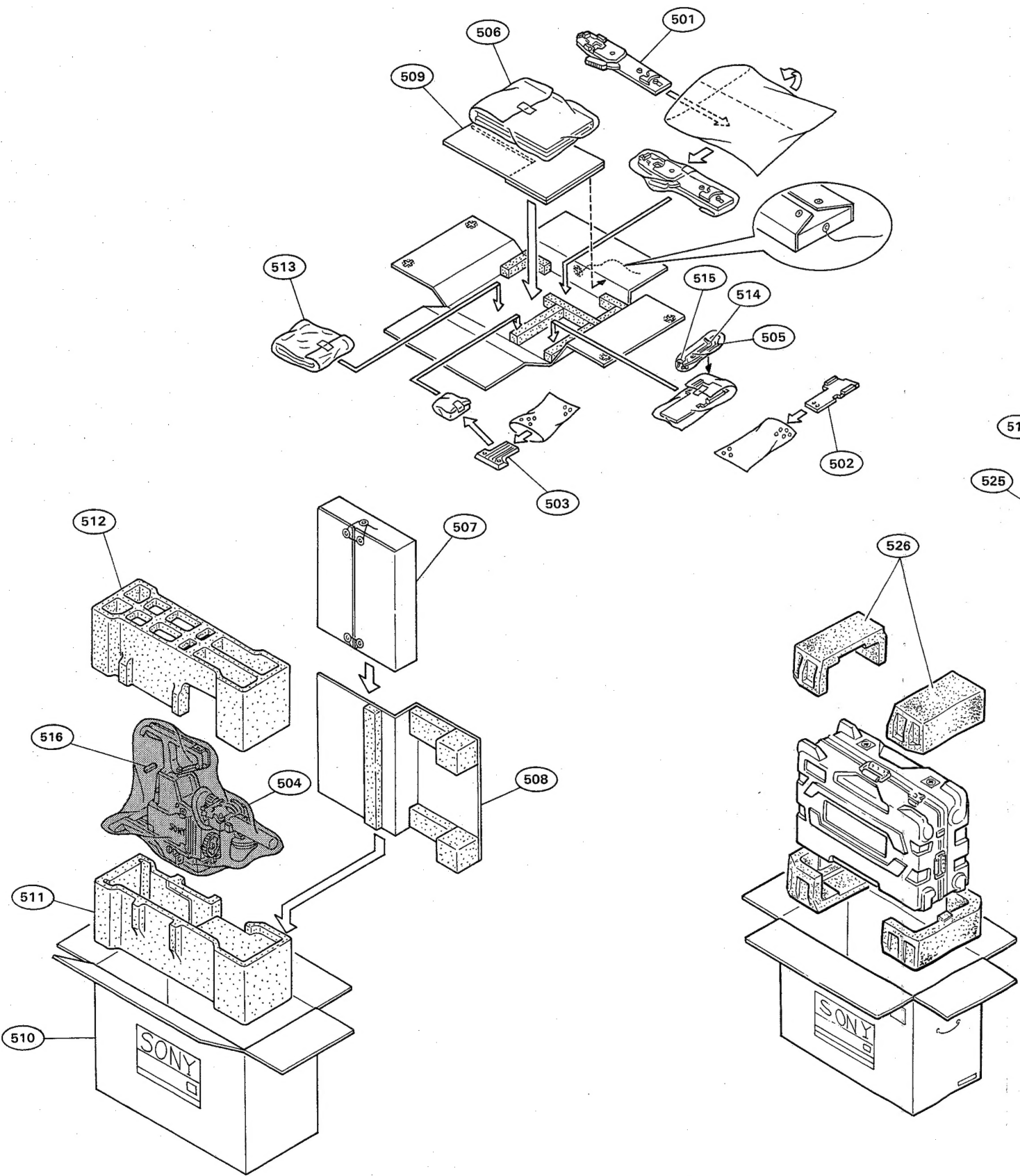


No.	Parts No.	Description
401	A-7408-015-F	ADAPTOR ASS'Y TRIPOD
402	3-648-211-00	SPRING, TENSION
403	3-644-002-00	CUSHION, HANDLE
404	3-492-235-XX	SPRING, TENSION
405	3-676-392-00	BRACE, SLIDE
407	3-676-394-00	SPRING, LEAF
408	3-676-395-00	PLATE (A), SLIDE
409	3-676-396-00	PLATE (B), SLIDE
410	3-676-397-02	JOINT
411	3-676-398-02	DISK
412	3-676-399-00	PIN, DISK
413	3-678-701-00	PIN (B), VIR
414	3-678-702-00	BEARING
415	3-678-703-00	LID UPPER
416	3-678-704-00	SPACER
417	3-678-705-00	SHAFT, VTR PIN RETAINER
418	3-678-706-00	PIN (A), VTR
419	3-678-707-00	PLATE (B), FIXED, SPRING
420	3-678-708-00	CAP
421	3-678-709-01	BRACE, FITTING
422	3-687-137-01	PLATE (A), FIXED SPRING
423	3-678-711-02	SHEET, REAR PLATE
424	7-685-122-01	ROLLER
425	3-678-713-00	SPRING (L), LEAF
426	3-685-121-01	SPRING, LEAF
427	3-678-715-00	PIN, TRIGGER
428	3-678-716-00	KNOB, LEVER
429	X-3678-636-1	LEVER ASSY, CLAMP
430	3-678-718-00	LEVER, LOCK
431	3-678-719-00	BRACE, RETAINER
432	3-678-720-02	PLATE (A), REAR
433	3-678-721-02	PLATE (B), REAR
434	3-678-722-02	SPECER, T SHOE
435	3-678-723-02	TABLE, ATTACHMENT
436	3-701-441-11	WASHER, 4
437	3-701-446-01	WASHER, POLY 8MM DIA (0.13T)
438	3-703-347-11	NUT, PRESS
440	3-678-783-00	GUIDE, T SHOE
441	3-687-123-01	CUSHION
442	3-687-124-01	RETAINER
443	3-701-446-11	WASHER, POLY 8MM DIA (0.25T)



8-5. PACKING MATERIAL AND ACCESSORY SUPPLIDE  
BVP-5/5P

BVW-105/105P



No.	Parts No.	Description	No.	Parts No.	Description
501	A-7408-015-F	TRIPOD ADAPTER	516	3-675-930-00	CAP, DUST
	3-701-630-01	BAG, POLYETHYLENE	517	1-557-660-11	CABLE ASSY. 4P
502	A-7520-253-A	MOUNTED PCB EX-108	518	1-562-642-11	CONNECTOR
	3-710-087-01	BAG, PROTECTION	519	3-676-269-01	CAP, DUST
503	X-3710-001-1	LID ASSY, UPPER	520	3-676-372-01	STRAP
	3-710-087-01	BAG, PROTECTION			
504	3-710-087-01	BAG, PROTECTION	521	3-698-917-01	BELT
505	3-692-589-01	TOOL	522	3-711-702-02	COVER
			523	7-700-736-04	WRENCH, L
506	3-701-630-01	BAG, POLYETHYLENE (FOR MANUAL)	524	3-701-644-01	BAG, POLYETHYLENE (BVW-105)
507	3-710-084-01	BOX, ACCESSORY	525	3-701-619-01	BAG, POLYETHYLENE
508	3-710-085-01	SIDE, PANEL			
509	3-710-086-01	SPACER	526	3-711-708-01	CUSHION
510	3-710-088-01	INDIVIDUAL CARTON (UC, J)	527	X-2251-205-1	CASE ASSY, CARING
	3-710-089-01	INDIVIDUAL CARTON (EK)			
511	3-710-091-01	CUSHION (LOWER)			
512	3-710-090-01	CUSHION (UPPER)			
513	3-711-702-01	COVER, RAIN			
514	7-721-130-20	WRENCH, L			
515	3-673-018-11	SCREW, BRIND			

## 8-6. FIXTURE

Ref. No.	Part No.	Description
	<b>A-7520-253-A</b>	<b>BOARD EXTENDER "EX-108"</b>
	<b>3-692-589-01</b>	<b>BOARD EXTRACTOR</b>
	<b>J-6020-490-A</b>	<b>PATTERN BOX, PTB-100</b> (for 90 to 130Vac)
	<b>J-6020-680-A</b>	<b>PATTERN BOX, PTB-220</b> (for 190 to 240Vac)
	<b>J-6026-100-A</b>	<b>RESOLUTION CHART</b>
	<b>J-6026-130-A</b>	<b>GRAY SCALE CHART</b>
	<b>J-6196-080-B</b>	<b>DC POWER CORD (BW-608)</b>